

Service Manual

PIONEER
The Art of Entertainment

• KEH-3200QR/UC



ORDER NO.
CRT1426

CASSETTE CAR STEREO WITH FM/AM ELECTRONIC TUNER

KEH-3200QR	UC
KEH-2200QR	UC
KEH-3250QR	ES
KEH-2250QR	ES
KEH-1250	ES

Note:

- See the separate manual CX-197 (CRT1328) for the cassette mechanism description.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
- Whenever a cord assembly may be used for repairing, do not fail to employ the cord assembly designed for the related part.

Do not apply any cord assembly designed for a different part.

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SAFETY INFORMATION (UC MODEL)

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5). When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. SPECIFICATIONS

● KEH-3200QR, KEH-2200QR

General	
Power source	14.4 V DC (10.8 – 15.6 V allowable)
Grounding system	Negative type
Maximum current consumption	7.0 A
Dimensions (chassis)	178(W) × 50(H) × 141(D) mm (nose) 178(W) × 21(H) × 51.2(D) in. 188(W) × 58(H) × 16(D) mm (mounting bracket) 182(W) × 52(H) × 152.5(D) mm 7.38(W) × 2.14(H) × 5.6(D) in. 7.18(W) × 2.0(H) × 6(D) in.
Weight	1.4 kg (3.1 lbs.)
Amplifier	
Continuous power output	is 10 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output	25 W × 2/15 W × 4 (EIAJ)
Load impedance	4 Ω [4 – 8 Ω allowable]
Preout output level/impedance	500 mV/100 Ω
Tone controls (bass)	±10 dB (100 Hz)
(treble)	±10 dB (10 kHz)
Loudness contour	+8 dB (100 Hz) (volume: –30 dB)
Tape player	
Tape	Compact cassette tape (C-30 – C-90)
Tape speed	4.76cm/sec. (+ 0.14cm/sec. – 0.05cm/sec.)
Fast forward/rewind time	Approx. 100 sec. for C-60
Wow & flutter	0.13% (WRMS)
Frequency response (KEH-3200QR)	Metal: 40 – 17,000 Hz (±3 dB)
(KEH-2200QR)	40 – 14,000 Hz (±3 dB)
Stereo separation	45 dB
Signal-to-noise ratio	Metal: Dolby B NR IN: 63 dB (IHF-A network)
(KEH-3200QR)	Dolby NR OUT: 55 dB (IHF-A network)
(KEH-2200QR)	52 dB (IHF-A network)
FM tuner	
Frequency range	87.9 – 107.9 MHz
Usable sensitivity	11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IHF-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	20 – 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)
Selectivity	70 dB (JACA) (±400 kHz)
Three-signal intermodulation (desire signal level)	110 dBf
(KEH-3200QR)	50 dBf two undesired signal level: 110 dBf
(KEH-2200QR)	55 dBf two undesired signal level: 110 dBf
AM tuner	
Frequency range	530 – 1,710 kHz
Usable sensitivity	16 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (±10 kHz)

These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

Note: Specifications and the design are subject to possible modification without notice due to improvements.

● KEH-3250QR, KEH-2250QR

General	
Power source	14.4 V DC (10.8 – 15.6 V allowable)
Grounding system	Negative type
Maximum current consumption	7.0 A
Dimensions (chassis)	178(W) × 50(H) × 141(D) mm (nose) 188(W) × 58(H) × 16(D) mm (mounting bracket) 182(W) × 52(H) × 152.5(D) mm
Weight	1.4 kg
Amplifier	
Continuous power output	is 10 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output	25 W × 2/15 W × 4 (EIAJ)
Continuous power output	11 W × 2 (1% dist. at 1 kHz)
Load impedance	4 Ω [4 – 8 Ω allowable]
Preout output level/impedance (KEH-3250QR)	500 mV/100 Ω
Tone controls (bass)	±10 dB (100 Hz)
(treble)	±10 dB (10 kHz)
Loudness contour	+8 dB (100 Hz) (volume: –30 dB)
Tape player	
Tape	Compact cassette tape (C-30 – C-90)
Tape speed	4.76cm/sec. (+ 0.14cm/sec. – 0.05cm/sec.)
Fast forward/rewind time	Approx. 100 sec. for C-60
Wow & flutter	0.13% (WRMS)
Frequency response (KEH-3250QR)	Metal: 40 – 17,000 Hz (±3 dB)
(KEH-2250QR)	40 – 14,000 Hz (±3 dB)
Stereo separation	45 dB
Signal-to-noise ratio	Metal: Dolby B NR IN: 63 dB (IEC-A network)
(KEH-3250QR)	Dolby NR OUT: 55 dB (IEC-A network)
(KEH-2250QR)	52 dB (IEC-A network)
FM tuner	
Frequency range	87.5 – 108 MHz
Usable sensitivity	11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	20 – 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)
AM tuner	
Frequency range	531 – 1,602 kHz (8 kHz)
Usable sensitivity	16 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (±10 kHz)

Note: Specifications and the design are subject to possible modification without notice due to improvements.

● KEH-1250

General

Power source	14.4 V DC (10.8 – 15.6 V allowable)
Grounding system	Negative type
Max. current consumption	7.0 A
Dimensions (chassis)	178(W) × 50(H) × 147.5(D) mm
(nose)	170(W) × 46(H) × 12(D) mm
Weight	1.3 kg

Amplifier


Continuous power output	is 10 W per channel min. into 4 ohms, both channels driven 50 to 15,000 Hz with no more than 5% THD.
Maximum power output	25 W × 2/15 W × 4 (EIAJ)
Continuous power output	11 W × 2 (1% dist. at 1 kHz)
Load impedance	4 Ω (4 – 8 Ω allowable)
Loudness contour	+8 dB (100 Hz)
	(volume: –30 dB)

Tape player

Tape	Compact cassette tape (C-30 – C-90)
Tape speed	4.76cm/sec. (+ 0.14cm/sec., – 0.05cm/sec.)
Fast forward/rewind time	Approx. 100 sec. for C-60
Vow & flutter	0.13% (WRMS)
Frequency response	40 – 14,000 Hz (±3 dB)
Stereo separation	45 dB
Signal-to-noise ratio	52 dB (IEC-A network)

● Features

● KEH-3200QR, KEH-2200QR

- Built-in highly sensitive "Super Tuner" for automatic control of stereo separation, muting and frequency characteristics to match the strength of the FM signal.
- The Best Stations Memory automatically memorizes the six best (strongest) stations in the six preset buttons in the order of their strength.
- Preset scan tuning for sequential recall of preset frequencies.
- Auto reverse function eliminates the need to turn the cassette over and allows uninterrupted playback.
- Built-in Dolby B NR for reduced tape hiss.
(This feature is provided for the KEH-3200QR.)
- Music search function allows automatic playback from the beginning of the selection being played or the beginning of the next selection.
(This feature is provided for the KEH-3200QR.)
- 25 W × 2 maximum output for sound with power to spare. Combination with separately available power amp unit allows configuration of a powerful 4-speaker system.
- The "Quick Release Mounting Bracket", facilitates mounting and dismounting of the car stereo and serves to protect the unit from theft.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

● KEH-3250QR, KEH-2250QR

- Built-in highly sensitive "Super Tuner" for automatic control of stereo separation, muting and frequency characteristics to match the strength of the FM signal.
- The Best Stations Memory automatically memorizes the six best (strongest) stations in the six preset buttons in the order of their strength.
- Preset scan tuning for sequential recall of preset frequencies.
- Auto reverse function eliminates the need to turn the cassette over and allows uninterrupted playback.

FM tuner


Frequency range	87.5 – 108 MHz
Usable sensitivity	11 dBf (1.0 μV/75 Ω, mono, S/N: 30 dB)
50 dB quieting sensitivity	16 dBf (1.7 μV/75 Ω, mono)
Signal-to-noise ratio	70 dB (IEC-A network)
Distortion	0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response	30 – 15,000 Hz (±3 dB)
Stereo separation	40 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range	531 – 1,602 kHz (9 kHz)
	530 – 1,710 kHz (10 kHz)
Usable sensitivity	18 μV (25 dB) (S/N: 20 dB)
Selectivity	50 dB (±9 kHz)
	50 dB (±10 kHz)

Note:

Specifications and the design are subject to possible modification without notice due to improvements.

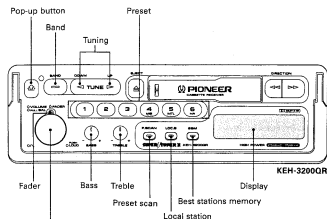
- Built-in Dolby B NR for reduced tape hiss.
(This feature is provided for the KEH-3250QR.)
- Music search function allows automatic playback from the beginning of the selection being played or the beginning of the next selection.
(This feature is provided for the KEH-3250QR.)
- 25 W × 2 maximum output for sound with power to spare. Combination with separately available power amp unit allows configuration of a powerful 4-speaker system.
(This feature is provided for the KEH-3250QR.)
- The "Quick Release Mounting Bracket", facilitates mounting and dismounting of the car stereo and serves to protect the unit from theft.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
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● KEH-1250

- Built-in highly sensitive "Super Tuner" for automatic control of stereo separation, muting and frequency characteristics to match the strength of the FM signal.
- The Best Stations Memory automatically memorizes the six best (strongest) stations in the six preset buttons in the order of their strength.
- Preset scan tuning for sequential recall of preset frequencies.
- Auto reverse function eliminates the need to turn the cassette over and allows uninterrupted playback.
- Choice of either 4-speaker or 2-speaker system is possible. When the 4-speaker system (15 W × 4) is used, volume of front and rear speakers can be adjusted independently, for optimum sound balance. The 2-speaker system (25 W × 2) provides more than enough power for clear, high-fidelity playback.

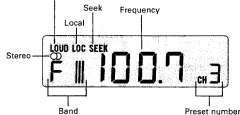
2. USING THE RADIO

● KEH-3200QR, KEH-2200QR, KEH-3250QR, KEH-2250QR

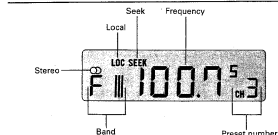
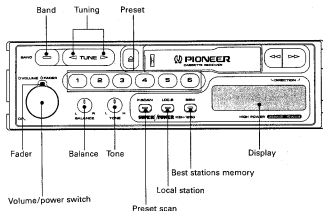


Volume/balance/loudness/
power switch (KEH-3200QR, KEH-2200QR, KEH-3250QR)
Volume/balance/power switch (KEH-2250QR)

Loudness (KEH-3200QR, KEH-2200QR, KEH-3250QR)



● KEH-1250



● Before attempting operation...

- Set the fader control to the upright position.
- Turning the power switch to the right causes power to switch ON and the current frequency to appear on the display.
- Since the set is designed preferentially for tape play, eject a cassette tape, if mounted, before operating the radio.
- Press the band switch to select the band.
- Press both ends of tuning button and the seek tuning indicator will appear on the display.
- Press either the left or right side of the tuning button to tune in the desired frequency. (Pressing the right side will increase the frequency.)
- Adjust the volume and balance. To adjust the balance, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.
- Adjust the tone.

● To enter a frequency into the preset memory...

- Hold down one of the preset buttons (1-6) for approximately two seconds. The frequency is stored in memory (assigned to the preset button pressed) once the preset number stops flashing on the display.

Six FM1 frequencies, six FM2 frequencies, six FM3 frequencies and six AM frequencies can be entered.

● Best Stations Memory Button

Automatically tunes strong frequencies and assigns them to preset buttons 1 through 6 for one-touch automatic tuning. The best stations memory function is activated by pressing this button for approximately 2 seconds. The best stations memory function is indicated by — flashing on the display, and this function can be canceled by pressing the band switch. The frequency display returns once the best stations memory function is complete. The frequency displayed at this time is of the strongest station assigned to preset button 1 by the best stations memory function.

- 6 best (strongest) frequencies are memorized in the 6 preset buttons in the order of their strength, the strongest one being assigned to preset button 1.
- The frequencies previously assigned to the preset buttons are retained when 6 frequencies cannot be located.
- The best stations memory is in operation while — is flashing on the display.

● Local Station Switch

Pressing this switch increases the seek threshold level so that only relatively strong stations can be tuned in (local indicator will illuminate on the display). Local seek threshold level can be selected among four levels for FM and two levels for AM.

Holding this switch down for approximately 2 seconds and then pressing the right side of the tuning button changes the display from L-1, L-2, L-3 to L-4. Pressing the left side of the tuning button changes the display from L-4, L-3, L-2 to L-1 (L-1 and L-2 for AM). The bigger the number, the higher the seek threshold becomes and only relatively strong stations can be tuned in.

● Fader Control

This control is used to adjust the balance between the front and rear speakers when using a 4-speaker system. Turning the control to the right decreases the volume of the rear speakers, while turning it to the left decreases the volume of the front speakers. With 2-speaker systems, set this control to the upright position.

A considerable amount of sound will continue to be produced from speakers of a 4-speaker system which have been cut by setting the fader control either to the front speakers or rear speakers. This is normal and does not indicate malfunction.

Important (KEH-3200QR, KEH-2200QR, KEH-3250QR)

The output of power amp. (sold separately) is not affected by fader control when this unit is linked with the power amp.

● Loudness Switch (KEH-3200QR, KEH-2200QR, KEH-3250QR)

When playing back a tape or listening to the radio at low volume, the low tone is emphasized and more clearly heard by pressing this switch.

● Auto-Loudness (KEH-2250QR, KEH-1250)

When playing back a tape or listening to the radio at low volume, the low tone is automatically emphasized.

● Pop-up button (KEH-3200QR, KEH-2200QR, KEH-3250QR, KEH-2250QR)

When the quickrelease handle is on the bottom, push the button to move it up slightly. Push it when you remove the unit from the dashboard.

The button works only when the handle lock is released.

Before removing this unit from your vehicle, be sure to remove cassette tapes and make sure that radio power is switched OFF.

Seek Tuning

Press both ends of tuning button and tuning to the next higher or lower broadcast on the band can be accomplished automatically by simply pressing either the right or left side of the tuning button. FM frequencies change in 0.2 MHz steps while those in the AM band change in 10 kHz steps. (KEH-3200QR, KEH-2200QR)

FM frequencies change in 50 kHz steps while those in the AM band change in 9 kHz steps. (KEH-3250QR, KEH-2250QR, KEH-1250)

- AM frequencies are tuned in 10 kHz steps after the tuning steps are changed.

Preset Scan Tuning

Pressing the preset scan button (CH indicator flashes) causes previously stored frequencies to be tuned in sequentially for eight seconds each. Press again when the desired frequency is tuned in to cancel preset scan tuning.

Preset Tuning

Pressing the preset button instantly tunes in the frequency programmed in the memory for that button.

Manual Tuning

When manual tuning is employed, FM frequencies change in 0.2 MHz steps while AM frequencies change in 10 kHz steps. (KEH-3200QR, KEH-2200QR)

When manual tuning is employed, FM frequencies change in 50 kHz steps while AM frequencies change in 9 kHz steps.

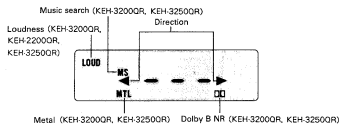
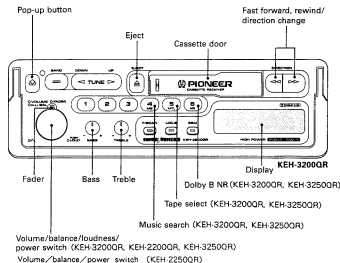
(KEH-3250QR, KEH-2250QR, KEH-1250)

- AM frequencies are tuned in 10 kHz steps after the tuning steps are changed.

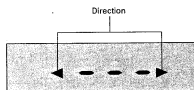
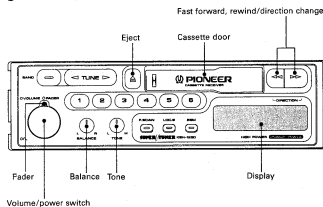
1. Press both ends of tuning button and the seek tuning indicator will disappear from the display.
2. Change the frequency by pressing either the left or right side of the tuning button. Pressing the button once will change the frequency one step (see above). Continuously depressing either side of the button will successively change the frequency at the prescribed step.

3. USING THE TAPE DECK

● KEH-3200QR, KEH-2200QR, KEH-3250QR, KEH-2250QR



● KEH-1250



● Before attempting operation...

- Set the fader control to the upright position.
- Turning the power switch to the right causes power to switch ON.
- Loading a cassette tape into the load slot causes playback to begin automatically.
- Adjust the volume and balance. To adjust the balance, first pull the knob until a click is heard. After setting to the desired level, push the knob in again to its original position.
- Adjust the tone.
- When tape playback reaches the end of the tape, playback will automatically switch from the side being played to the opposite side (ie. Side A to Side B or vice versa) (Auto-reverse). To eject the tape during playback, press the eject button.
- A loose or warped label on a cassette tape may interfere with the eject mechanism of the unit or cause the cassette to become jammed in the unit. Avoid using such tapes or remove such labels from the cassette before attempting use.
- Do not try to eject the cassette immediately after insertion, as it will cause malfunction. Wait a few seconds.
- Loose tapes should be rewound with the aid of a pencil and unevenly wound tapes rewound with the use of the fast forward function.
- Be sure to eject the tape when the vehicle's ignition is turned OFF. Leaving the tape in the unit can deform the pinch roller causing wow and flutter during tape playback.

● Fast Forward/Rewind

Since the transport can be in either direction, both the left and right high-speed tape transport buttons can be regarded as fast forward/rewind buttons.

For fast forward, press the high-speed tape transport button that corresponds to the direction that is shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the opposite side of the tape (Auto-reverse).

For rewind, press the button that is opposite that of the direction shown by the direction indicator. When the end of the tape is reached, playback will automatically begin from the beginning of the same side of the tape (Auto-replay).

Fast forward and rewind can be terminated by pressing the respective opposite high-speed tape transport button.

● Direction Change

Push the fast forward and rewind buttons together to switch from one side of the tape to the other (from Side A to Side B or vice versa).

● Dolby B NR Switch (KEH-3200QR, KEH-3250QR)

Press when playing a tape recorded with Dolby NR.

● Tape Select Switch (KEH-3200QR, KEH-3250QR)

This switch is used to switch to the proper mode for the tape being used and should be depressed when using chrome or metal tapes.

Music Search (KEH-3200QR, KEH-3250QR)

● Returning to the beginning of selection A

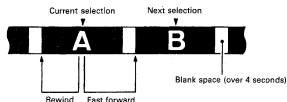
Press the music search button and then the high-speed tape transport button for the direction opposite that is shown by the direction indicator. Playback will automatically start from the beginning of selection A.

● Moving from selection A to selection B

Press the music search button and then the high-speed tape transport button that corresponds to the direction shown by the direction indicator. Playback will automatically start from the beginning of selection B.

To enable regular fast forward/rewind operations, press the music search button again to turn the function OFF. The following errors will cause the music search function to operate improperly, even though the unit is not malfunctioning.

- Unrecorded "blank" portions between selections less than 4 seconds → the blank portion cannot be detected by the unit.
- Pauses in recorded conversations longer than 4 seconds → the unit reads these as blanks between selections.
- Portions recorded at very low volume for more than 4 seconds → the unit reads these as blanks between selections.



4. CONNECTIONS

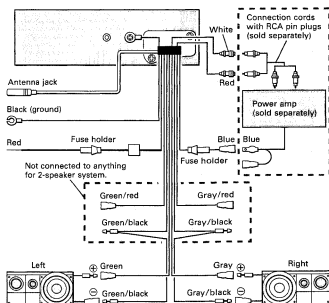
Note:

- To avoid shorts in the electrical system, be sure to disconnect the battery \ominus cable before beginning installation.
- Replace fuses only with the types stipulated on the fuse holder.
- Be sure to properly connect the color coded leads. Failure to do so can cause malfunctions.
- Cover unused terminals with tape to prevent electrical shorts.
- Since a unique BPTL circuit is employed, never wire so the speaker leads are directly grounded or the left and right speaker \ominus leads are common.
- Speakers connected to this unit must be a high-power type possessing maximum input of at least 25 W and impedance of 4 to 8 ohms. Connecting speakers with output and/or impedance values other than those noted here can damage the speakers.
- Refer to the power amp owner's manual when connecting a power amp (sold separately) to the RCA pin jack. (KEH-3200QR, KEH-2200QR, KEH-3250QR)
- When the power amp is being linked with this system, be sure not to connect the blue lead to the amp's power terminal. Likewise, when linking this system with the auto-antenna, do not connect to power terminal for the antenna. Such connection can make overcurrent cause malfunctions.

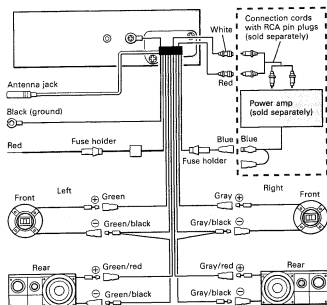
Black (ground)	To vehicle (metal) body.
Blue	If this unit is combined with a power amp, connect its blue lead to the blue lead (system control terminal) of the power amp. If combined with an auto-antenna, connect its blue lead to the relay control terminal of the auto-antenna. (MAX. 300 mA, 12 V DC)
Orange (KEH-1250)	To terminal always supplied with power regardless of ignition switch position.
Red	To electric terminal controlled by ignition switch (12 V DC) ON/OFF.

● KEH-3200QR, KEH-2200QR

2-speaker system

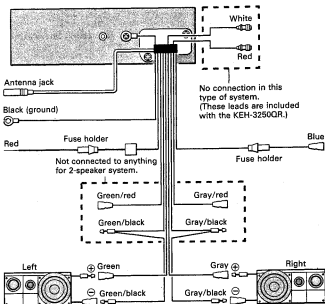


4-speaker system 1

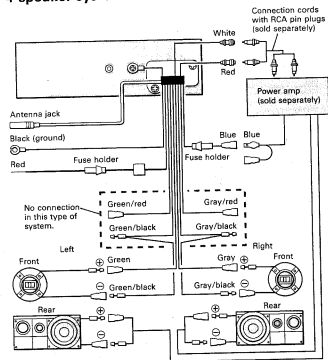


● KEH-3250QR, KEH-2250QR

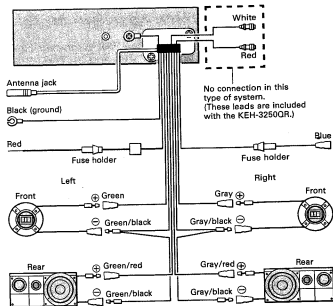
2-speaker system



4-speaker system 2



4-speaker system 1



5. DISASSEMBLY

• Removing the Case

1. Insert and turn a screwdriver to remove the case.
2. Raise the case to remove.

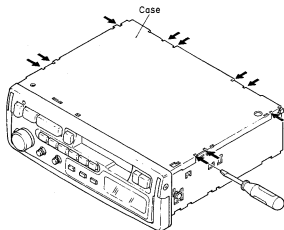


Fig. 1

• Removing the Grille Assy

1. Remove the two knobs.
2. Press the tabs at four locations, and then pull out the grille assy.

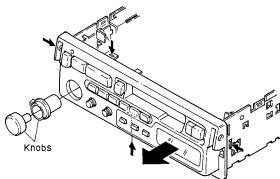


Fig. 3

• Removing the Handle

1. Remove the two screws, and then remove the handle.

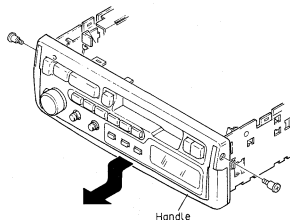


Fig. 2

• Removing the Cassette Mechanism Assy

1. Remove the insulator
2. Disconnect the connector.
3. Remove the six screws A and two screws B.
4. Remove the cassette mechanism assy.

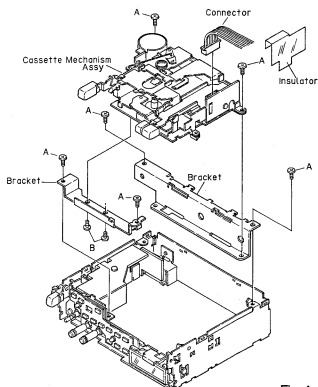


Fig. 4

● Removing the Dolby NR P. C. Board
(KEH-3200QR, KEH-3250QR)

1. Pull out the Dolby NR P. C. Board.

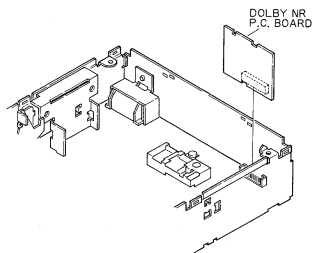


Fig. 5

● Removing the Tuner Amp Unit (KEH-1250/ES)

1. Remove the screw C and for screws D.
2. Raise up on tuner amp unit to remove it from the chassis unit.

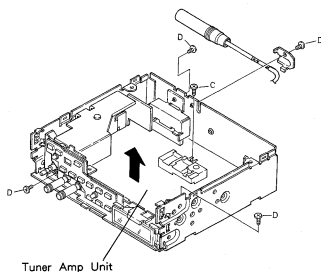


Fig. 7

● Removing the Tuner Amp Unit
(KEH-3200QR, KEH-3250QR, KEH-2200QR, KEH-2250QR)

1. Remove the four screws C.
2. Raise up on tuner amp unit to remove it from the chassis unit.

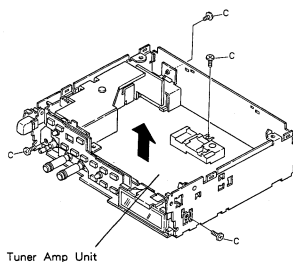


Fig. 6

6. ADJUSTMENT

● Connection Diagram

NOTICE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

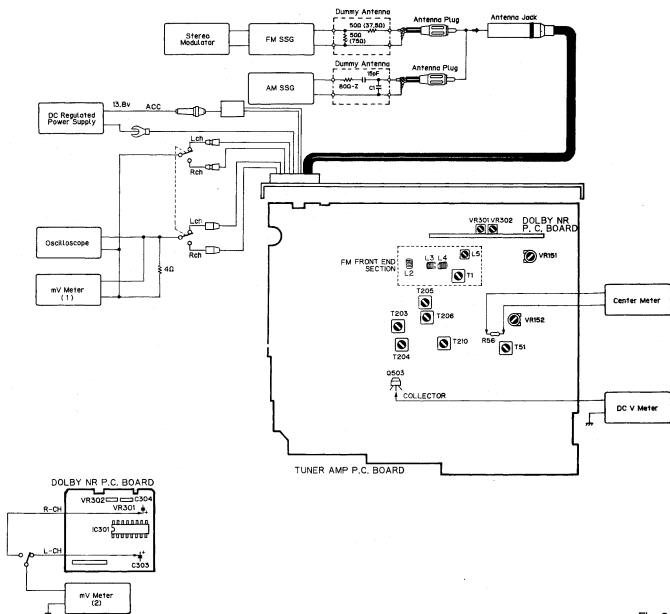


Fig. 8

7. BLOCK DIAGRAM

● KEH-3200QR/UC

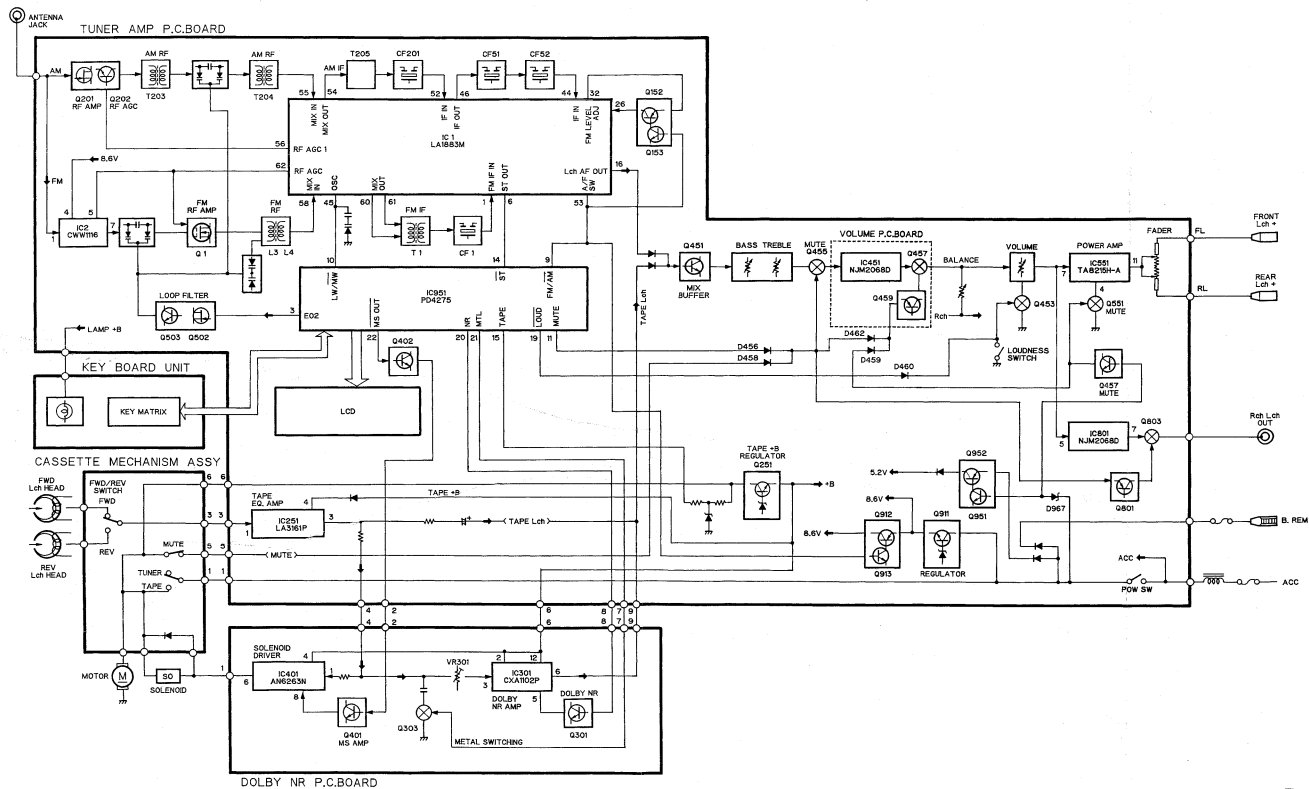


Fig. 9

DOLBY NR ADJUSTMENT

(KEH-3200QR/UC, KEH-3250QR/ES)

No.	Cassette Tape	Adjusting Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz, 200nwb/m)	VR301 (Lch) VR302 (Rch)	mV Meter (2) : -6dBs ± 1dB (DOLBY NR Switch: OFF)

FM ADJUSTMENT ※1 Stereo MOD.: Pilot=10%

※2 Stereo MOD.: 1kHz, L+R=90%, Pilot=10%

	No.	FM SSG (400Hz, 100%)		Displayed Frequency (MHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (MHz)	Level (dBf)			
Tuning Volt	1	—	—	108.0	L5	DC V Meter: 7.0V
Tracking	1	98.1	15	98.1	L2, L4	mV Meter (1): Maximum
	2	98.1	15	98.1	T1	mV Meter (1): Maximum
IF	1	98.1 Unmodulated	65	98.1	T51	Center Meter: 0
Pilot Cancel	1	98.1 ※ 1	65	98.1	VR151	mV Meter (1): Minimum (MPX Filter: OFF)
ARC	1	98.1 ※ 2	40	98.1	VR152	mV Meter (1): Separation 5dB

AM ADJUSTMENT

	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dB μ V)			
Tuning Volt	1	—	—	530	T210	DC V Meter: 1.0V
Tracking	1	1,000	20	1,000	T203, 204, 205, 206	mV Meter (1): Maximum

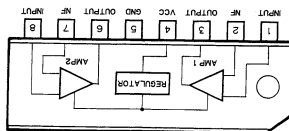
AM ADJUSTMENT ES model when tuning step at 9kHz.

(KEH-3250QR/ES, KEH-2250QR/ES, KEH-1250/ES)

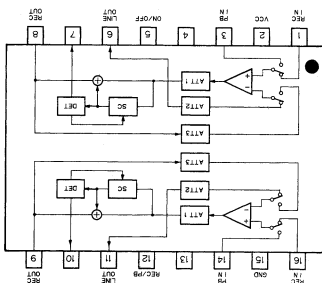
	No.	AM SSG (400Hz, 30%)		Displayed Frequency (kHz)	Adjusting Point	Adjustment Method (Switch Position)
		Frequency (kHz)	Level (dB μ V)			
Tuning Volt	1	—	—	531	T210	DC V Meter: 1.0V
Tracking	1	603	20	603	T203, 204, 205, 206	mV Meter (1): Maximum



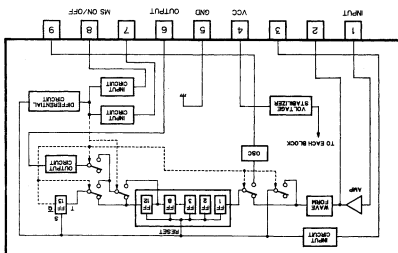
LA3161P

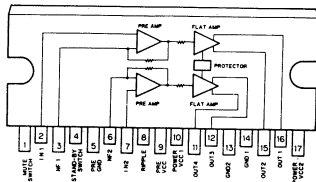
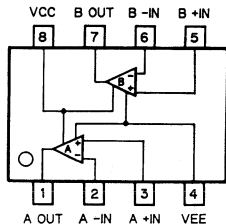


OXA1102P



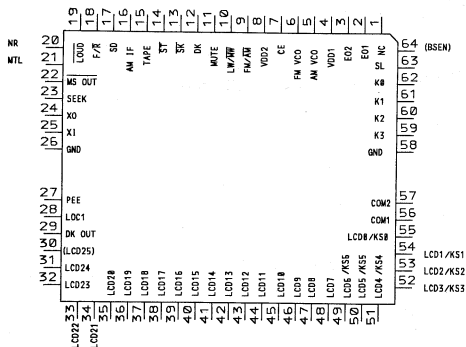
AN6263N





IC's marked by * are MOS type.
Be careful in handling them because they are very
liable to be damaged by electrostatic induction.

*PD4275



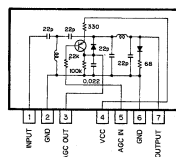
• Pin Function (PD4275)

Pin No.	Pin Name	I/O	Output Format	Function and Operation
1	NC		C	Not used
2	EO1	Output	C (3)	PLL error output pins
3	EO2			
4	VDD1			Device power supply pin
5	VDD2			
6	VCOL	Input		AM local oscillator signal input pin
7	VCOH	Input		FM local oscillator signal input pin
8	CE	Input		Chip enable input pin
9	FM/AM	Output	C	FM/AM band select pin "H":FM "L":AM
10	LW	Output	C	Loop filter switching output pin "H":LW
11	MUTE	Output	C	Mute output pin "H":ON
12	DK	INPUT		SK signal input pin
13	SK	INPUT		DK signal input pin
14	ST	Input		Stereo broadcast detection signal input pin "L":Stereo indicator is displayed
15	TAPE	INPUT		Tape power ON/OFF input pin "H":ON
16	AMIF	Input		AM IF signal input pin
17	SD	Input		FM SD input "H":During broadcast reception
18	F/REV	Input		Tape motion signal input pin "H":Forward
19	LOUD	Input		Loudness ON/OFF signal input pin "L":ON
20	NR	Output	C	Dolby NR ON/OFF output pin "H":ON
21	METAL	Output	C	Tape METAL ON/OFF output pin "L":ON
22	MSOUT	Output	C	Tape MS ON/OFF output pin "L":ON
23	SEEK	Output	C	"H" level:SEEK, BSM, BSA and PSCAN
24	XO	Output	C	Quartz oscillator terminal
25	X1	Input		
26	GND			GND terminal
27	PEE	Output	C	Alarm output pin
28	LOC1	Output	C	Halt sensitivity switching pin
29	DK OUT			"L":DX SEEK (P, SCAN) "H":LOC SEEK
30	NC			Not used

Pin No.	Pin Name	I/O	Output Format	Function and Operation
31	LCD24	Output	C	Segment signal output pins to LCD
55	LCD0			
48	KS7	Output	C	Key matrix strobe output pins
55	KS0			
56	COM1	Output	C	Common signal output pins to LCD
57	COM2			
59	K3	Input		Key matrix return input pins
62	K0			
63	SL	Input		AM station level analog input pin
64	NC		C	Not used

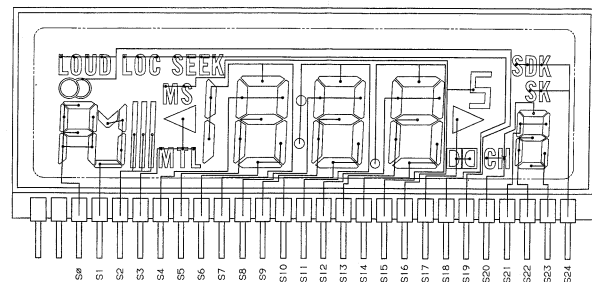
Output format	Meaning
C	C-MOS
C(3)	C-MOS(3 State)

CWW1116

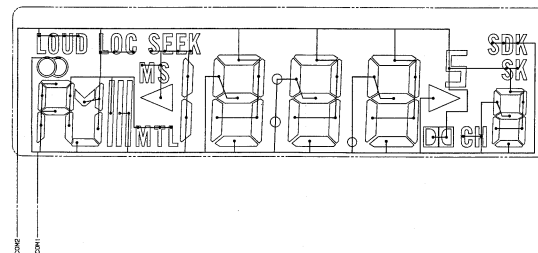


● LCD(CAW1162)

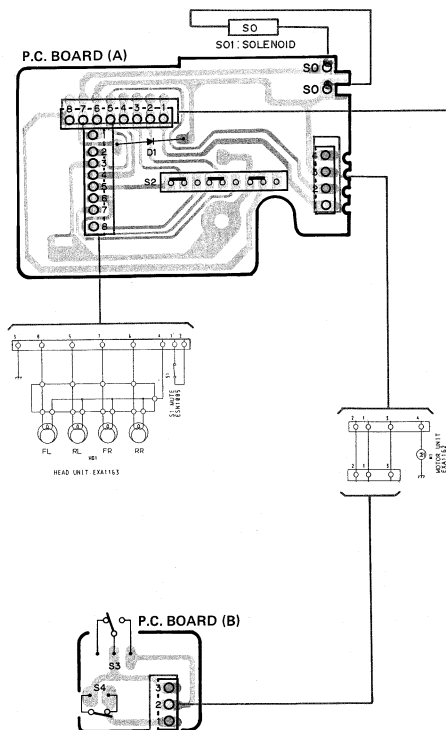
SEGMENT



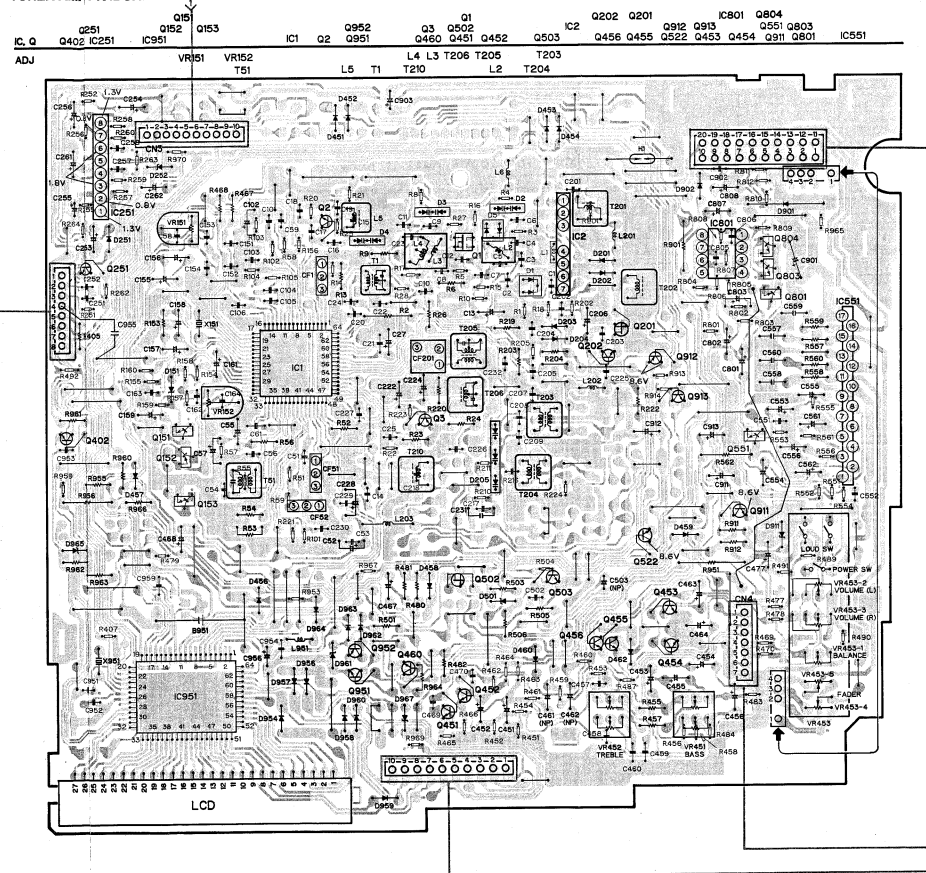
COMMON

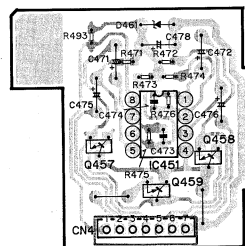


8. CONNECTION DIAGRAM (KEH-3200QR)

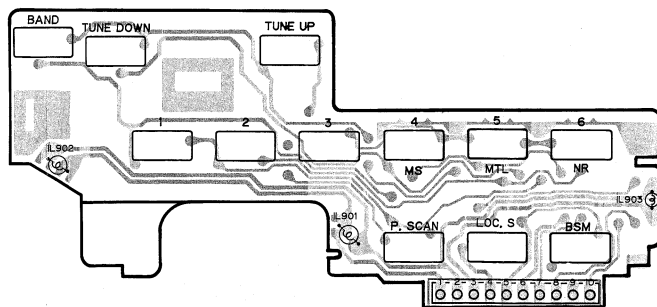


TUNER AMP P.C. BOARD





IC1			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.1V	41	1: 3V
6	5.2V	44	2.4V/0V
8	2.9V	46	3.3V/0V
11-13	4.8V	47	4V/5.2V
14	2.8V	51	0.2V
16, 17	2.3V	52	0V/6.9V
18	4.7V	53	4.9V/0V
20-22	3.5V	54	8.7V
23	3.8V	55	0V/2.2V
24, 25	3.5V	56	0V/4.3V
26	4.8V	58	3.4V/0V
28	0V/4.1V	59-62	8.6V/0V
29	0V/3.5V		
31	0V/6.4V		
32	3.4V		



DOLBY NR P.C.BOARD

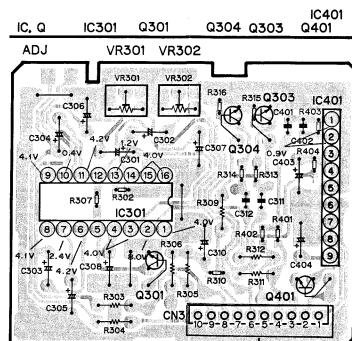
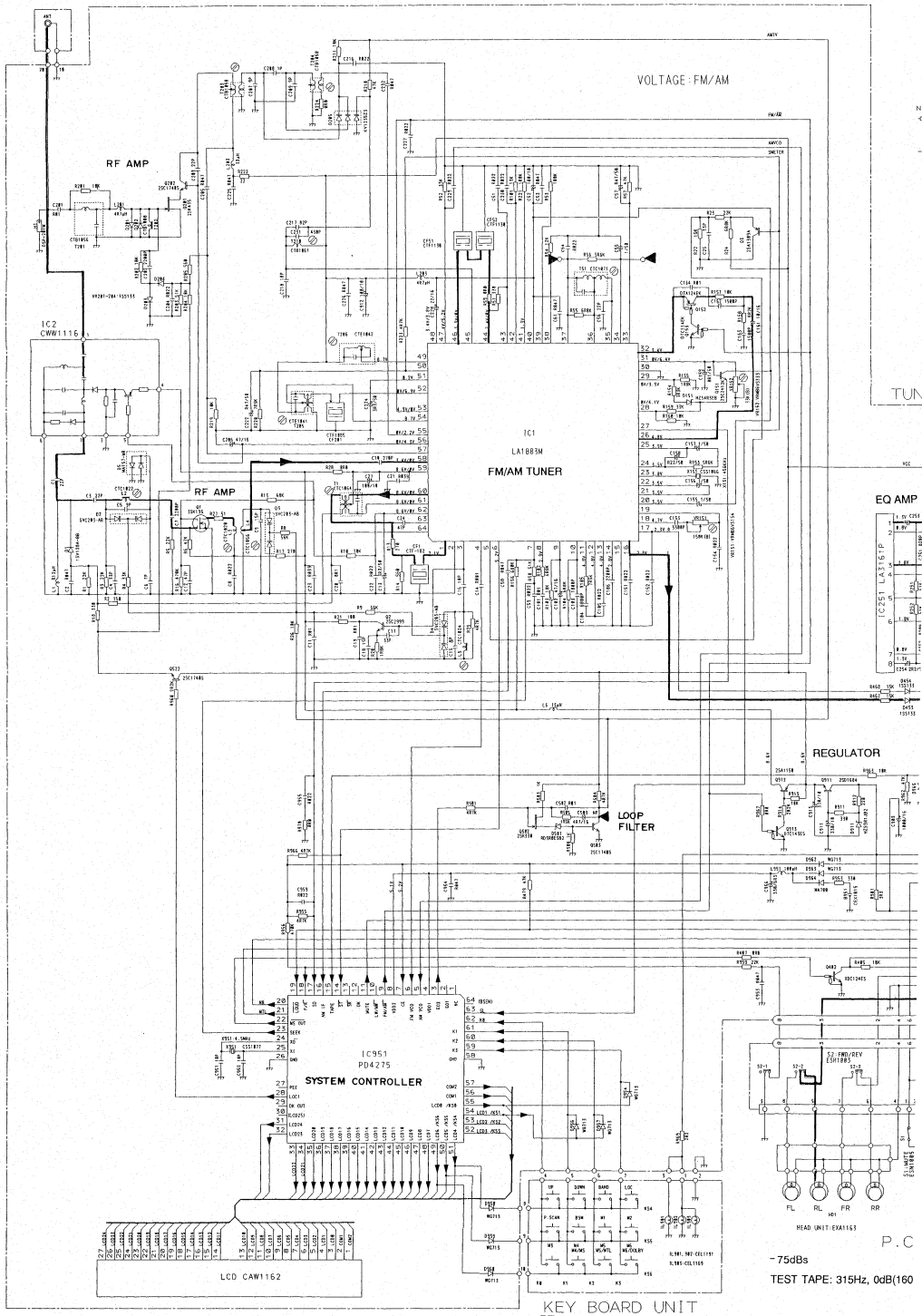


Fig. 10

9. SCHEMATIC CIRCUIT DIAGRAM (KEH-3200QR)



NOTE:

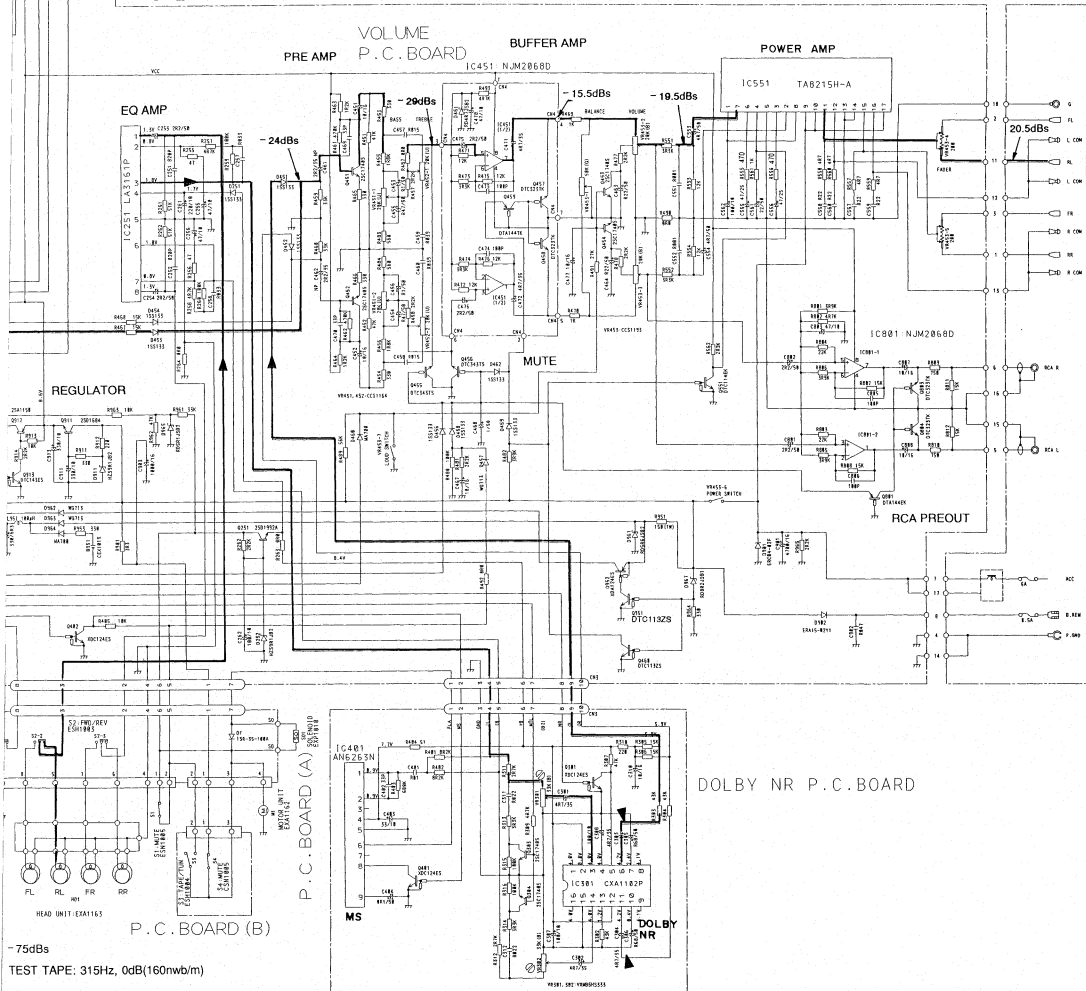
□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

⊞ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2=2R2
0.022=0022

TUNER AMP UNIT
Consists of
● TUNER AMP P.C. BOARD
● VOLUME P.C. BOARD
● DOLBY NR P.C. BOARD

TUNER AMP P.C. BOARD



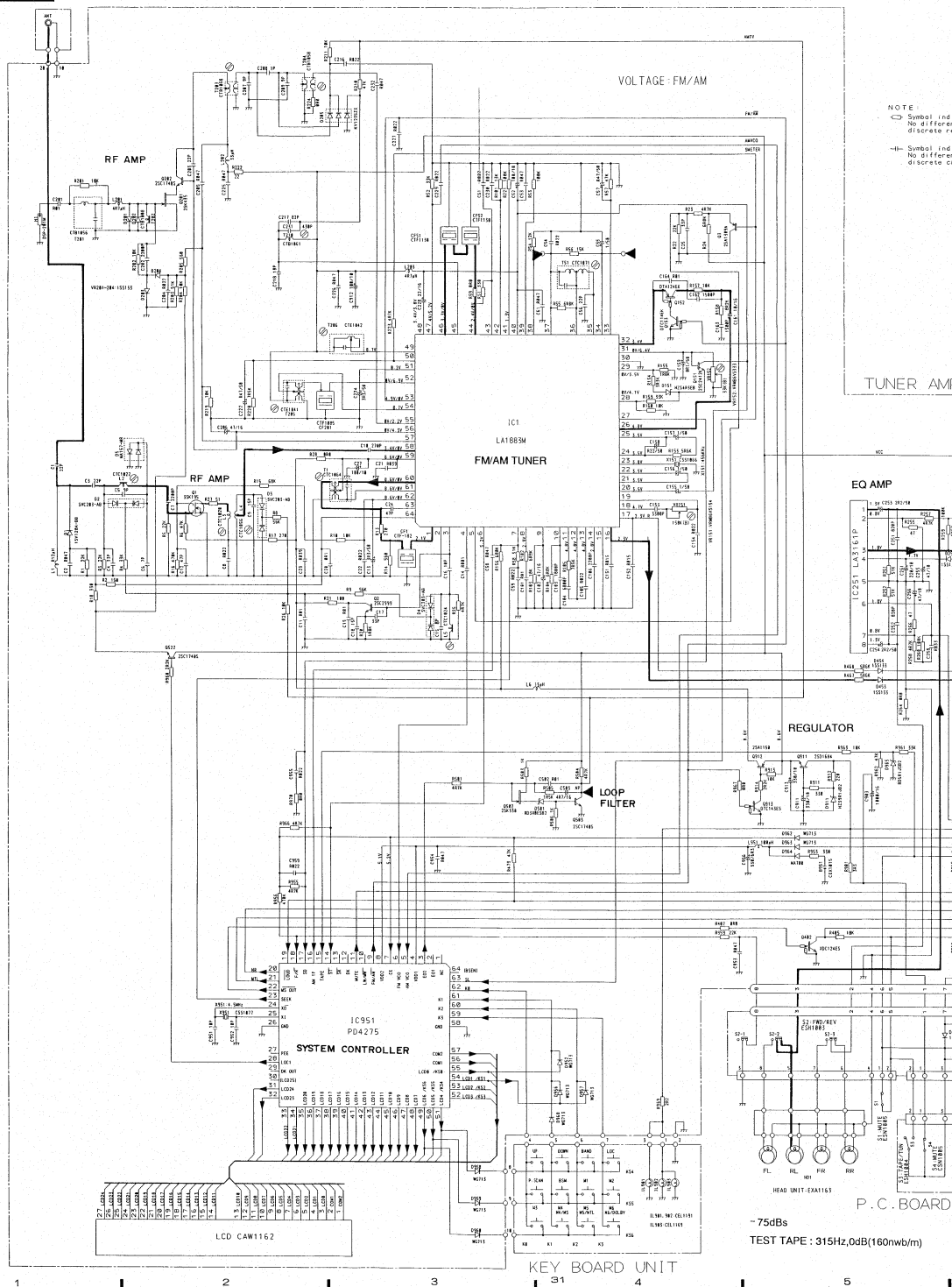
DOLBY NR P.C. BOARD

P.C. BOARD (B)

P.C. BOARD (A)

TEST TAPE: 315Hz, 0dB(160nwb/m)

10. SCHEMATIC CIRCUIT DIAGRAM (KEH-3250QR)



-H- Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

$$\textcircled{0}, \textcircled{0}22 \rightarrow R\textcircled{0}22$$

Consists of

- TUNER AMP P.C. BOARD
- VOLUME P.C. BOARD
- DOLBY NR P.C. BOARD

TUNER AMP P.C. BOARD



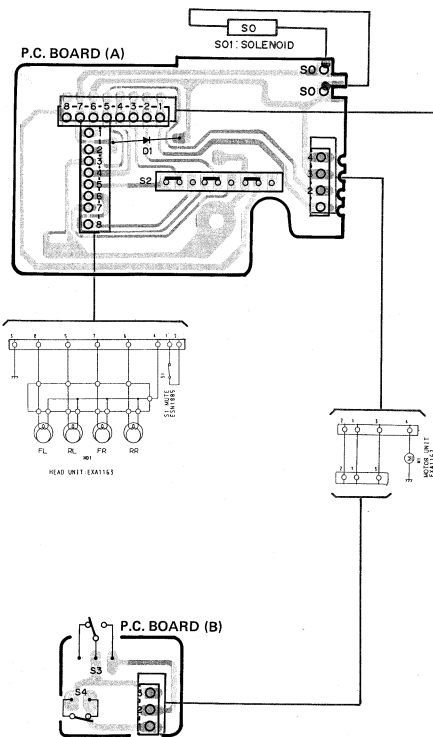
11. CONNECTION DIAGRAM (KEH-3250QR)

A

B

C

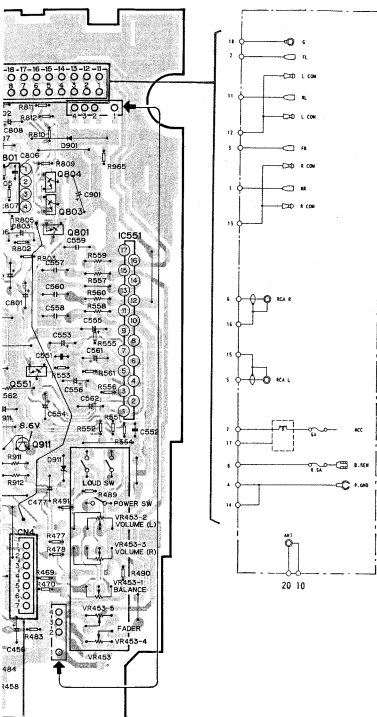
D



TUNER AMP P.C. BOARD

IC	Q	Q251	Q152	Q153	Q151	Q152	Q153	Q154	Q155	Q156	Q157	Q158	Q159	Q160	Q161	Q162	Q163	Q164	Q165	Q166	Q167	Q168	Q169	Q170	Q171	Q172	Q173	Q174	Q175	Q176	Q177	Q178	Q179	Q180	Q181	Q182	Q183	Q184	Q185	Q186	Q187	Q188	Q189	Q190	Q191	Q192	Q193	Q194	Q195	Q196	Q197	Q198	Q199	Q200	Q201	Q202	Q203	Q204	Q205	Q206	Q207	Q208	Q209	Q210	Q211	Q212	Q213	Q214	Q215	Q216	Q217	Q218	Q219	Q220	Q221	Q222	Q223	Q224	Q225	Q226	Q227	Q228	Q229	Q230	Q231	Q232	Q233	Q234	Q235	Q236	Q237	Q238	Q239	Q240	Q241	Q242	Q243	Q244	Q245	Q246	Q247	Q248	Q249	Q250																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
ADJ		Q402	IC251	IC951	VR151	VR152	T51																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												</

IC801 Q804
Q551 Q803
Q454 Q911 Q801 IC551

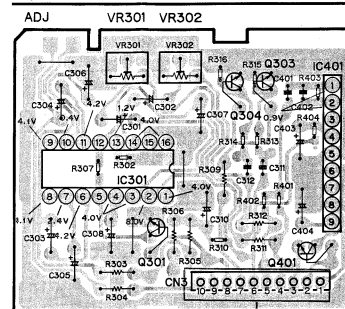


IC1

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.1V	41	1.3V
6	5.2V	44	2.4V/0V
8	2.9V	46	3.3V/0V
11-13	4.8V	47	4V/5.2V
14	2.8V	51	0.2V
16, 17	2.3V	52	0V/6.9V
18	4.7V	53	4.9V/0V
20-22	3.5V	54	8.7V
23	3.8V	55	0V/2.2V
24, 25	3.5V	56	0V/4.3V
26	4.8V	58	3.4V/0V
28	0V/4.1V	59-62	8.6V/0V
29	0V/3.5V		
31	0V/6.4V		
32	3.4V		

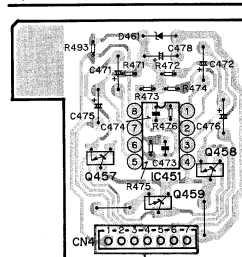
DOLBY NR P.C. BOARD

IC, Q IC301 Q301 Q304 Q303 IC401
ADJ VR301 VR302



VOLUME P.C. BOARD

IC, Q Q457 IC451 Q459 Q458



KEY BOARD UNIT

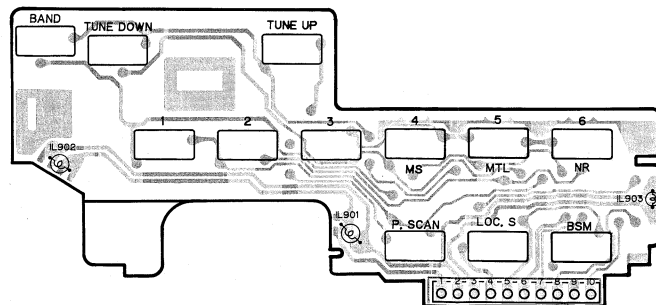


Fig. 13

12. CONNECTION DIAGRAM (KEH-2200QR)

TUNER AMP P.C. BOARD

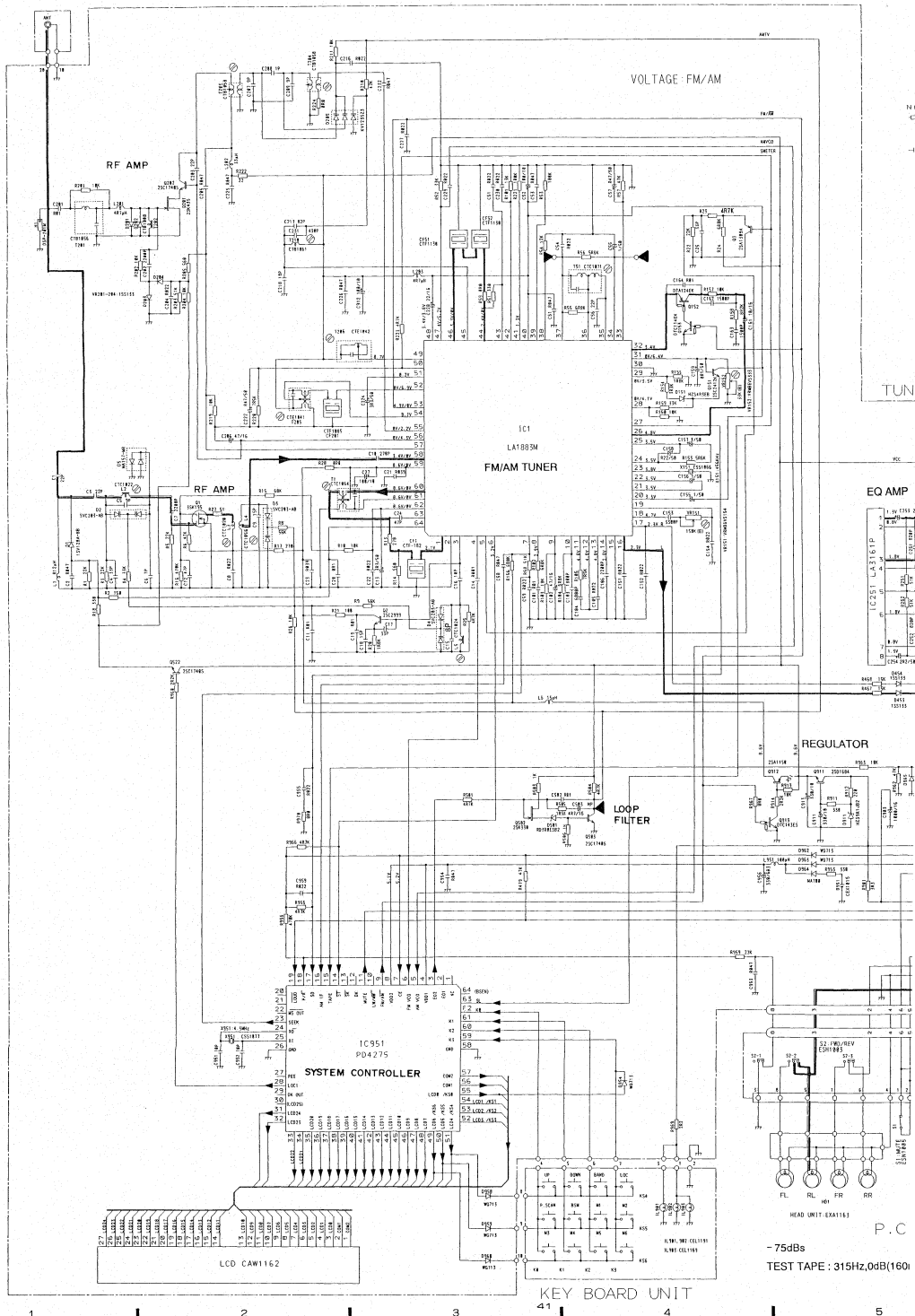
		Q151		Q152		Q153		Q154		Q155		Q156		Q157		Q158		Q159		Q160		Q161		Q162		Q163		Q164		Q165		Q166		Q167		Q168		Q169		Q170		Q171		Q172		Q173		Q174		Q175		Q176		Q177		Q178		Q179		Q180		Q181		Q182		Q183		Q184		Q185		Q186		Q187		Q188		Q189		Q190		Q191		Q192		Q193		Q194		Q195		Q196		Q197		Q198		Q199		Q200		Q201		Q202		Q203		Q204		Q205		Q206		Q207		Q208		Q209		Q210		Q211		Q212		Q213		Q214		Q215		Q216		Q217		Q218		Q219		Q220		Q221		Q222		Q223		Q224		Q225		Q226		Q227		Q228		Q229		Q230		Q231		Q232		Q233		Q234		Q235		Q236		Q237		Q238		Q239		Q240		Q241		Q242		Q243		Q244		Q245		Q246		Q247		Q248		Q249		Q250																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
IC	QJ	Q251	IC951	VR151	VR152	IC1	Q2	Q952	Q951	Q3	Q460	Q502	Q206	Q452	Q503	Q456	Q455	Q522	Q453	Q454	Q511	Q512	Q513	Q514	Q515	Q516	Q517	Q518	Q519	Q520	Q521	Q522	Q523	Q524	Q525	Q526	Q527	Q528	Q529	Q530	Q531	Q532	Q533	Q534	Q535	Q536	Q537	Q538	Q539	Q540	Q541	Q542	Q543	Q544	Q545	Q546	Q547	Q548	Q549	Q550	Q551																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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[illegible]

VOLUME P.C.BOARD

Fig. 14

13. SCHEMATIC CIRCUIT DIAGRAM (KEH-2200QR)



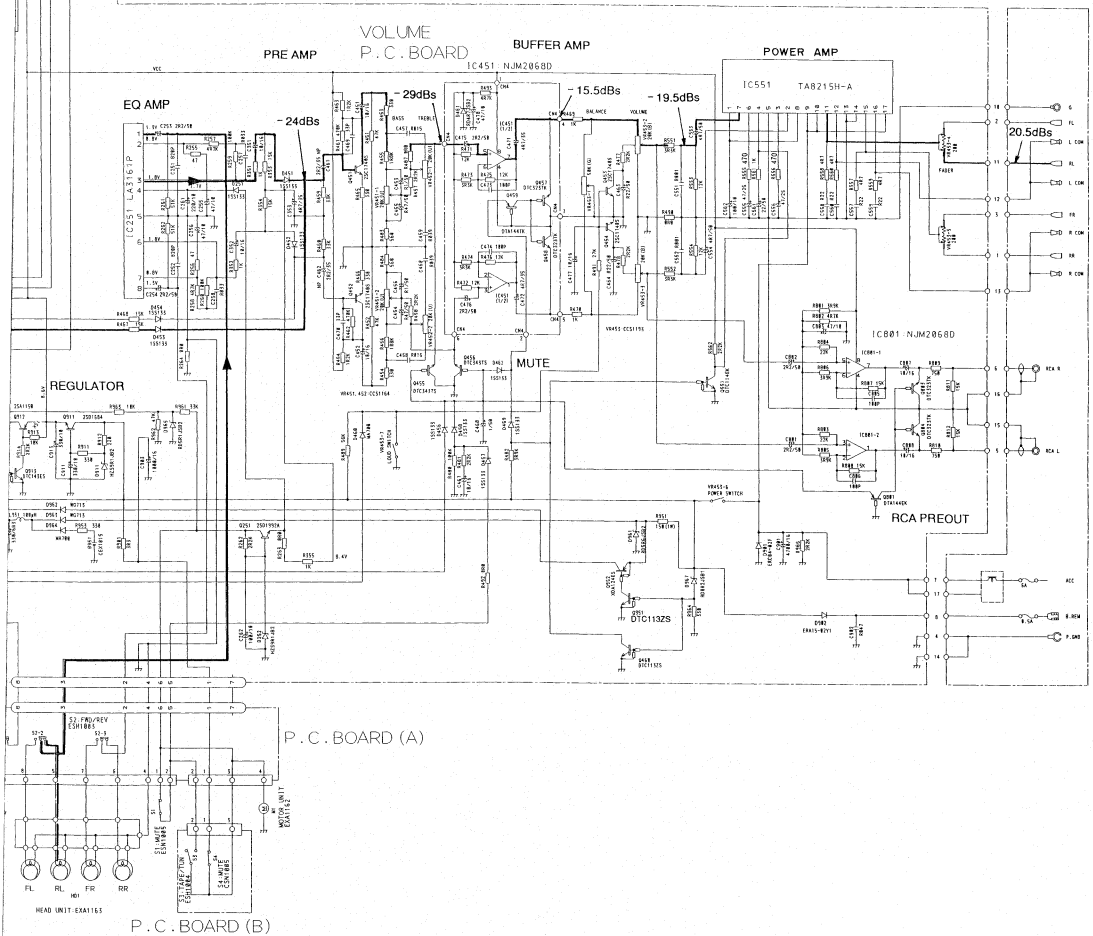
NOTE

- Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
- ||— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

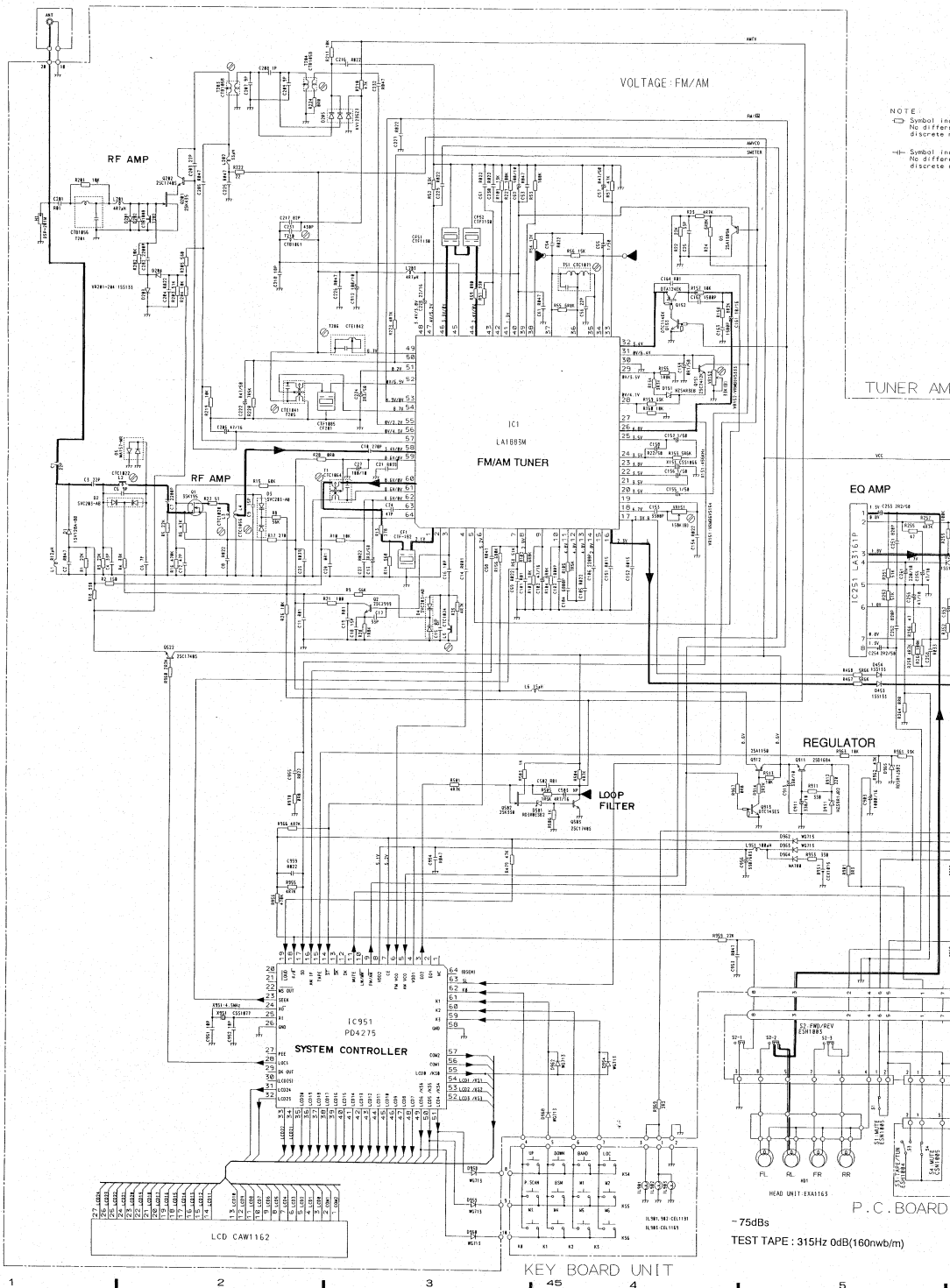
Decimal points for resistor and capacitor fixed values are expressed as:
2-2-202
0-022-0022

TUNER AMP UNIT
Consists of
● TUNER AMP P.C. BOARD
● VOLUME P.C. BOARD

TUNER AMP P.C. BOARD



-75dBs
TEST TAPE : 315Hz,0dB(160nwb/m)

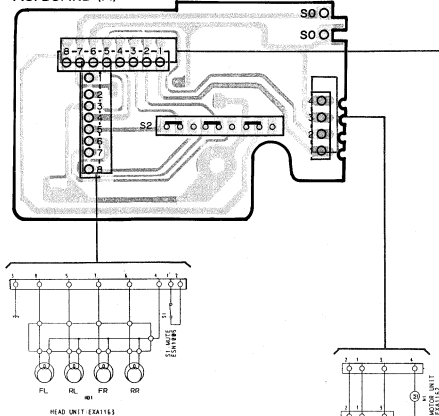


15. CONNECTION DIAGRAM (KEH-2250QR)

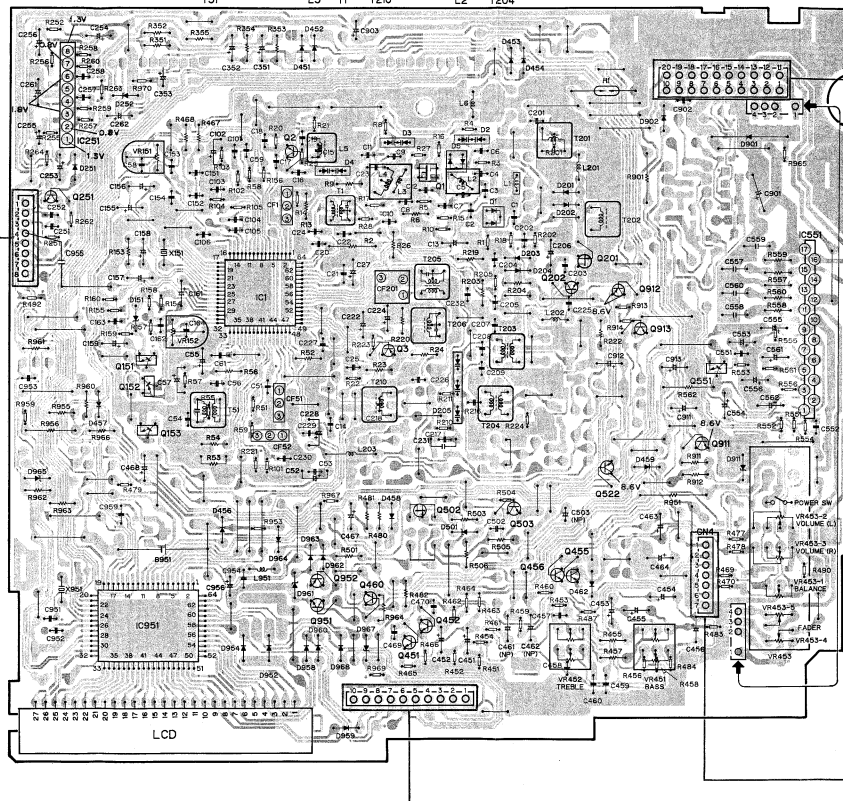
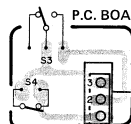
TUNER AMP P.C. BOARD

IC Q	Q251	Q151	Q152	Q153	IC1	Q2	Q952	Q3	Q1	Q502	Q452	Q503	Q202	Q201	Q912	Q913	Q551	IC551
ADJ	IC251	IC951	VR151	VR152	T51	L5	T1	L4	L3	T206	T205	L2	T204	Q456	Q455	Q522	Q911	

P.C. BOARD (A)



P.C. BOARD (B)

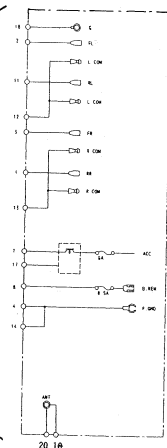


Q551
Q911

IC551

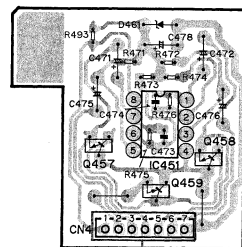
IC1

PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	2.1V	41	1.3V
6	5.2V	44	2.4V/0V
8	2.9V	46	3.3V/0V
11-13	4.6V	47	4V/5.2V
14	2.6V	51	0.2V
16, 17	2.3V	52	0V/6.9V
18	4.7V	53	4.9V/0V
20-22	3.5V	54	8.7V
23	3.8V	55	0V/2.2V
24, 25	3.5V	56	0V/4.3V
26	4.8V	58	3.4V/0V
28	0V/4.1V	59-62	8.6V/0V
29	0V/3.5V		
31	0V/6.4V		
32	3.4V		



VOLUME P.C. BOARD

IC, Q Q457 IC451 Q459 Q458



KEY BOARD UNIT

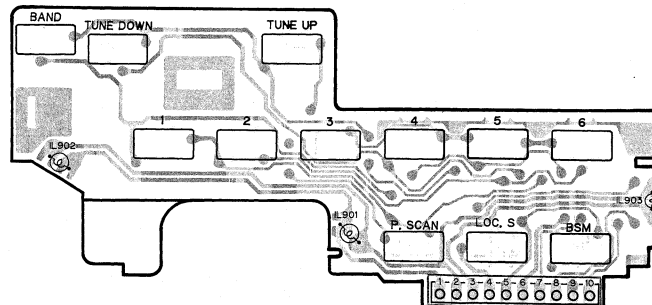


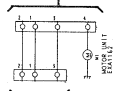
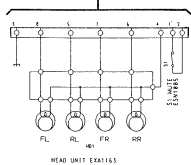
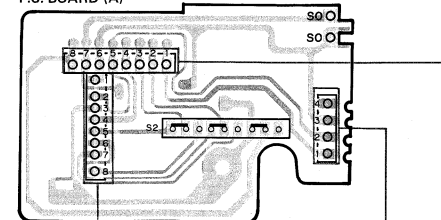
Fig. 17

16. CONNECTION DIAGRAM (KEH-1250)

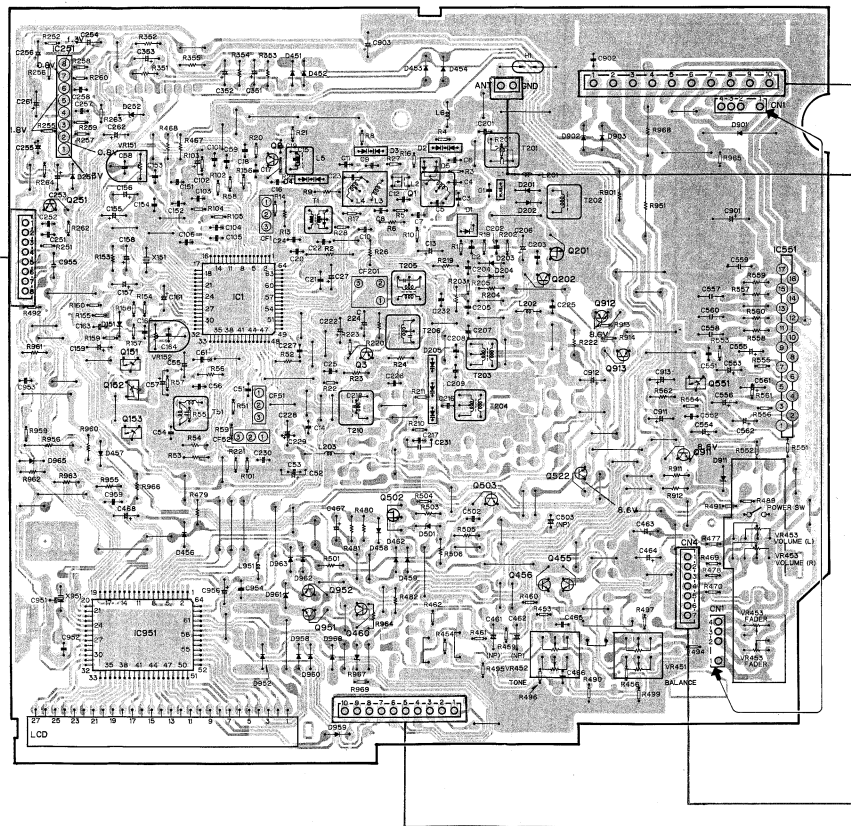
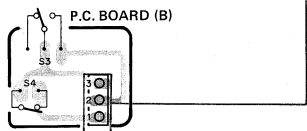
TUNER AMP P.C. BOARD

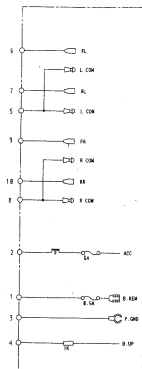
IC		Q251		IC251		IC951		Q151		Q153		Q152		IC1		Q2		Q951		Q952		Q3		Q460		Q1		Q502		Q503		Q202		Q456		Q522		Q912		Q913		Q911		Q551		IC551	
ADJ				VR151		VR152		T51								L5		T1				L4		L3		T206		T205		L2		T204		T203													

P.C. BOARD (A)



P.C. BOARD (B)



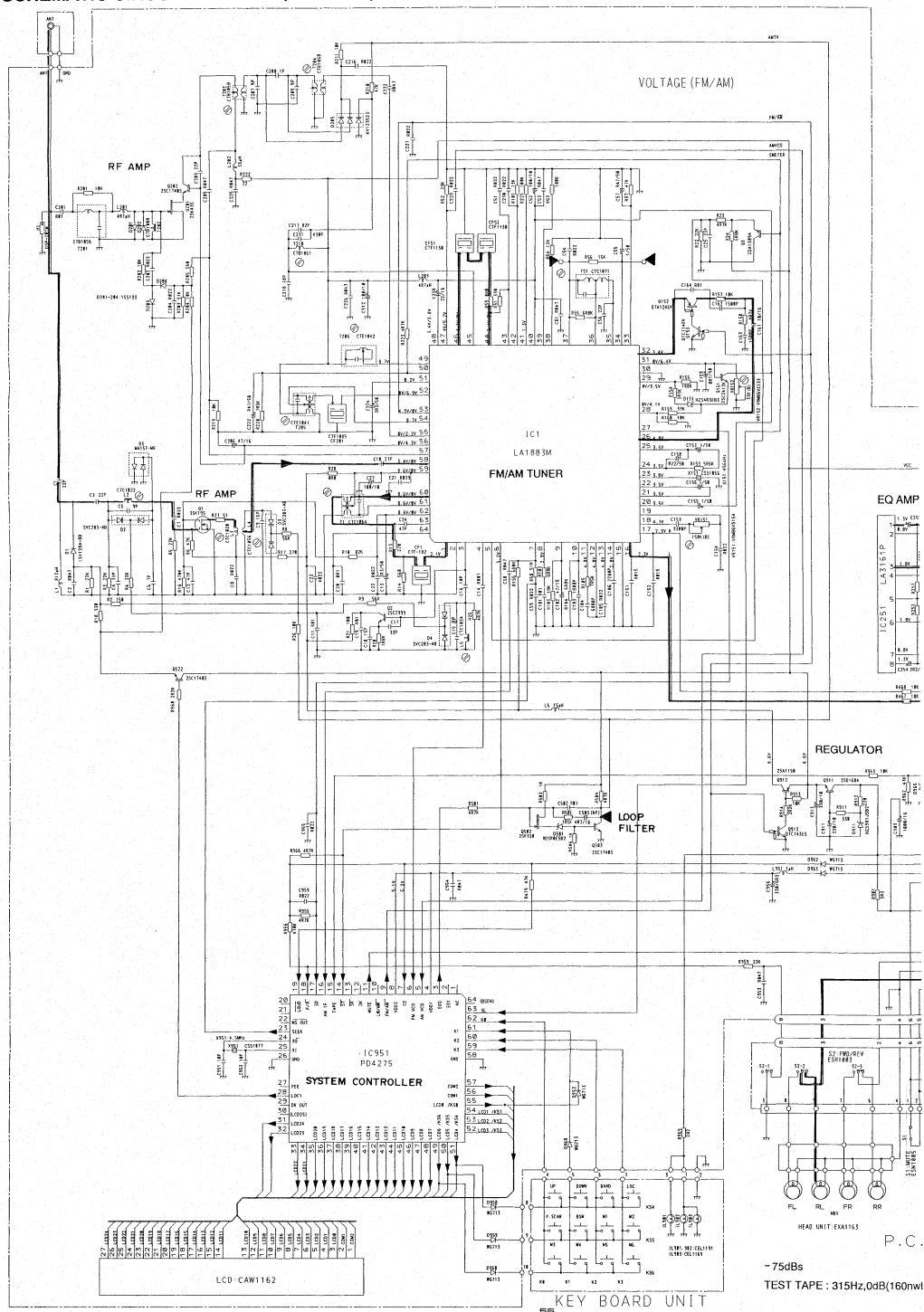


VOLUME P.C.BOARD

IC. Q	Q457	IC451 Q459	Q458
-------	------	---------------	------



17. SCHEMATIC CIRCUIT DIAGRAM (KEH-1250)



-75dBs

TEST TAPE : 315Hz,0dB(160rwl)

NOTE

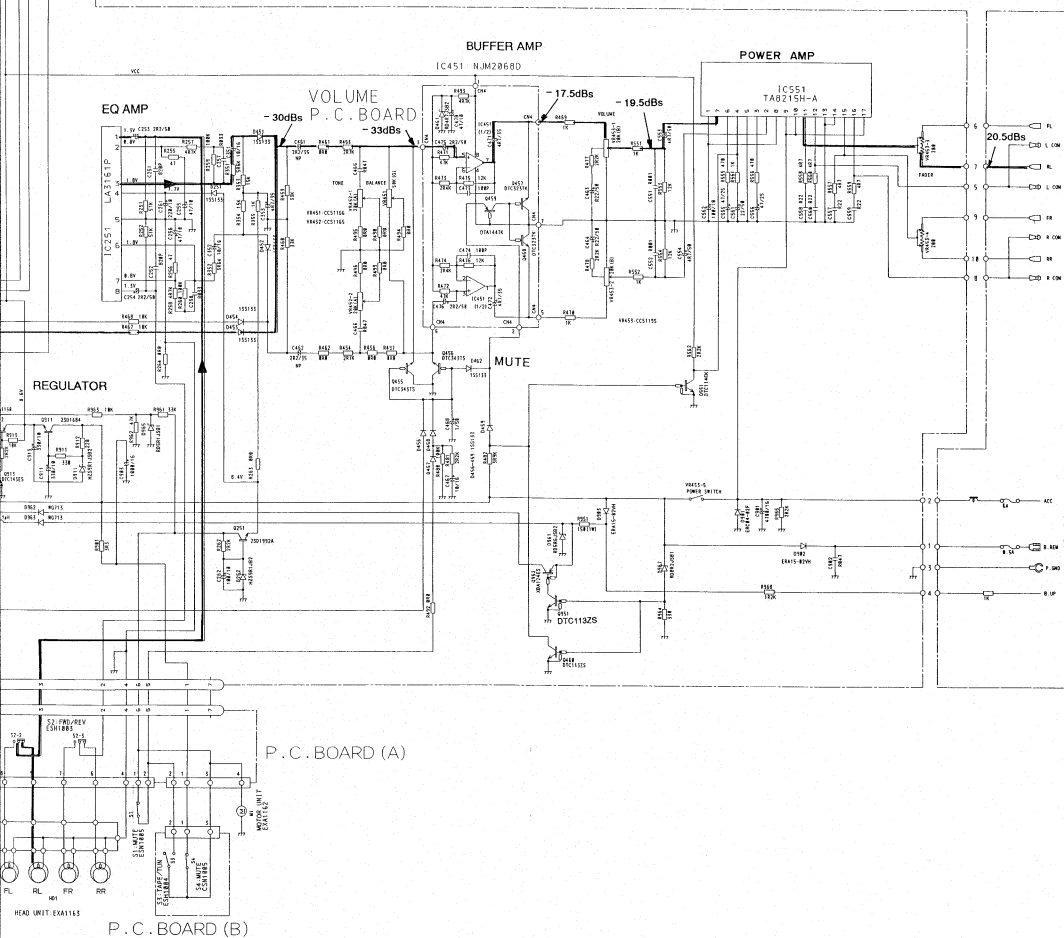
□ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

—||— Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as:
2.2=2R2
0.022=0022

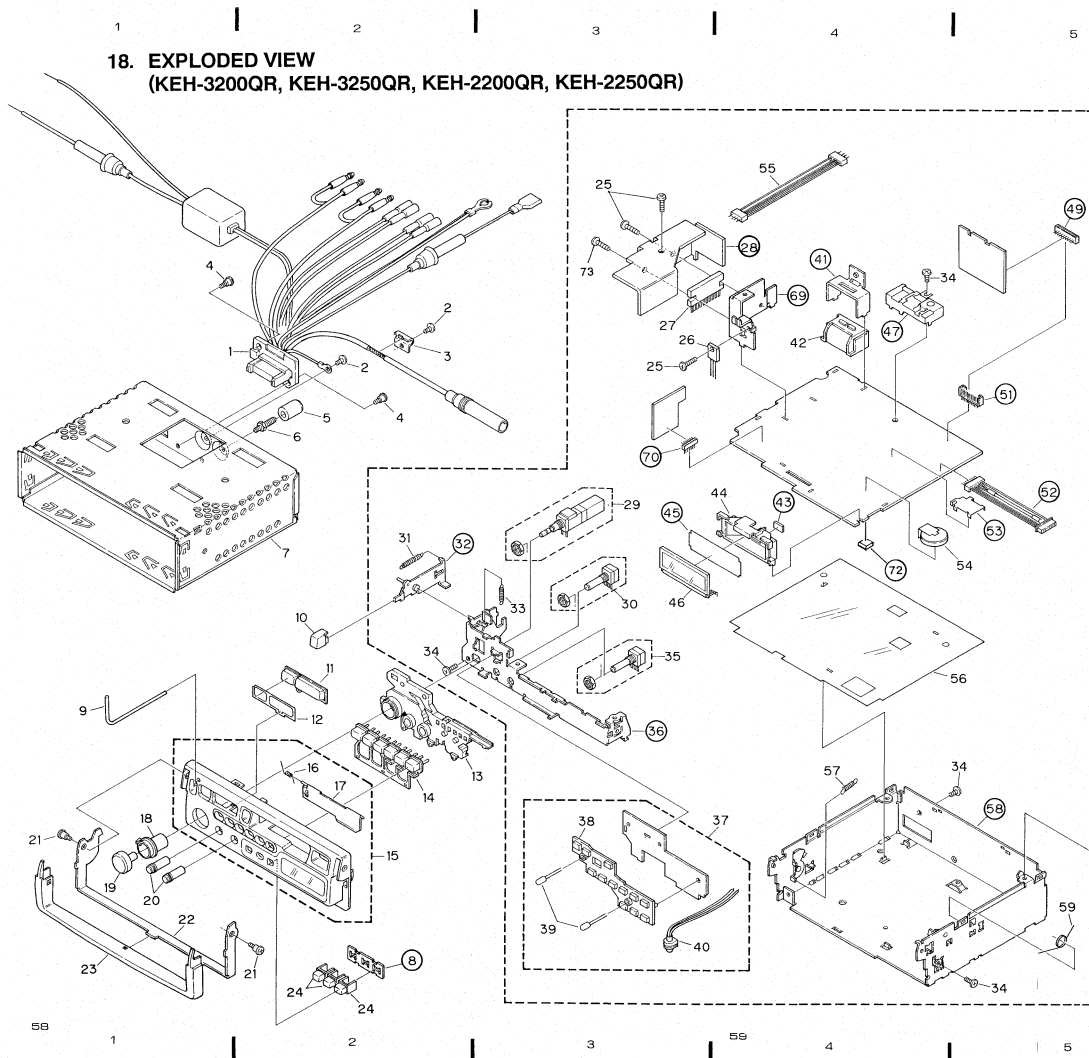
TUNER AMP UNIT
Consists of
• VOLUME P.C. BOARD
• TUNER AMP P.C. BOARD

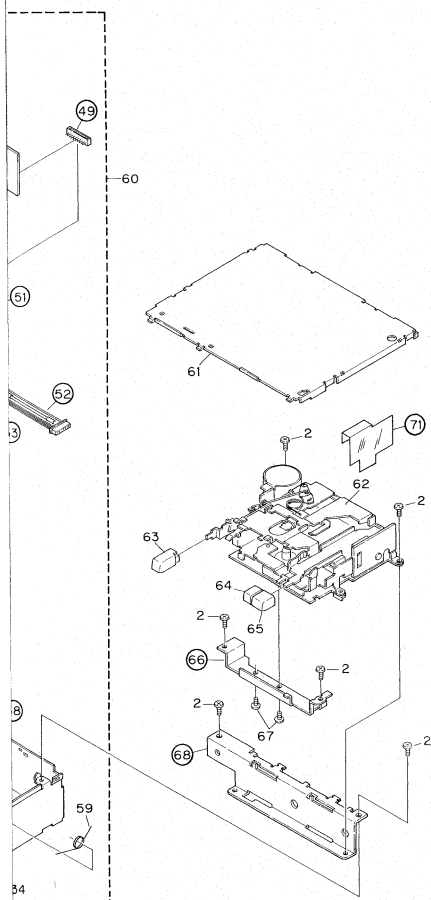
TUNER AMP P.C. BOARD



dBs
T TAPE : 315Hz,0dB(160nwb/m)

18. EXPLODED VIEW
(KEH-3200QR, KEH-3250QR, KEH-2200QR, KEH-2250QR)





NOTE:

- The parts marked with "★" may need long time to supply and their supply is subject to refuse as the case may be.
- Because the parts with encircled number shown on the dismantling drawing are not spare parts, we are unable to supply them in principle.

A • Parts List (KEH-3200QR/UC)

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord Assy	CDE3432	38	Switch	CNV2519
2	Screw	BSZ30P060FMC	39	Lamp (IL 901,902)	CEL1191
3	Clamper	CNC2982	40	Lamp (IL 903)	CEL1169
4	Screw	CBA1073	41	Holder	CNC3260
5	Bush	CNV1009	42	Connector	CKS1977
6	Screw	CBA1002	43	Spacer	CNM2914
7	Box	CNB1553	44	Holder	CNV2521
8	Cushion	CNM3180	45	Plate	CNM3285
9	Shaft	CLP1064	46	LCD	CAW1162
10	Button (QR EJECT)	CAC2548	47	Case	CNC3276
11	Button (BAND/TUNE)	CAC2544	48	.....
12	Spacer	CNM3275	49	Connector	CKS1997
13	Lens	CNV3024	50	.....
14	Button (1-6)	CAC2693	51	Plug	CKS1986
15	Grille Unit	CXA4459	52	Connector	CDE2884
16	Spring	CBH1397	53	Shield	CNC3275
17	Door	CAT1429	54	Battery (B 951)	CEX1015
18	Knob (FADER)	CAA1233	55	Connector	CDE3527
19	Knob (VOLUME)	CAA1234	56	Insulator	CNM3153
20	Knob (BASS/TREBLE)	CAA1235	57	Spring	CBH1447
21	Screw	CBA1165	58	Chassis Unit	CXA4426
22	Handle	CNC4007	59	Spring	CBH1366
23	Cover	CNV3022	60	Tuner Amp Assy	CNM2903
24	Button	CAC3097	61	Case	CNB1576
25	Screw	BSZ30P120FMC	62	Cassette Mechanism Assy	EXK1720
26	Transistor (Q 911)	2SD1684	63	Button (EJECT)	CAC2545
27	IC (IC 551)	TA8215H-A	64	Button (REW)	CAC2547
28	Heat Sink	CNC3896	65	Button (FF)	CAC2546
29	Volume (VOLUME, VR453)	CCS1193	66	Bracket	CNC3265
30	Volume (BASS, VR451)	CCS1164	67	Screw	BSZ26P060FMC
31	Spring	CBH1448	68	Bracket	CNC3264
32	Lever Unit	CXA4523	69	Holder	CNC3897
33	Spring	CBH-846	70	Plug	CKS1616
34	Screw	BSZ30P055FUC	71	Insulator	CNM3036
35	Volume (TREBLE, VR452)	CCS1164	72	Spacer	CNN-625
36	Holder Unit	CXA3709	73	Screw	BSZ30P100FMC
37	Key Board Unit	CNM2930			

Fig. 20

- The KEH-3250QR/ES, KEH-2200QR/UC and KEH-2250QR/ES Parts Lists enumerate the parts which differ from those enumerated in the KEH-3200QR/UC Parts List only. The parts other than those enumerated in the former are identical with those in the latter, to which you are requested to refer, accordingly.
- The KEH-3200QR/UC Parts List is given on page 56.

Mark No. Description	KEH-3200QR/UC	KEH-3250QR/ES	KEH-2200QR/UC	KEH-2250QR/ES
	Part No.	Part No.	Part No.	Part No.
14 Button(1-6)	CAC2693	CAC2692	CAC2670	CAC2670
15 Grille Unit	CXA4459	CXA4460	CXA4464	CXA4465
17 Door	CAT1429	CAT1404	CAT1429	CAT1404
29 Volume(VOLUME, VR453)	CCS1193	CCS1193	CCS1193	CCS1194
49 Connector	CKS1997	CKS1997	.....	.....
51 Plug	CKS1986	CKS1986	.....	.....
52 Connector	CDE2884	CDE2884	CDE3064	CDE3064
● 60 Tuner Amp Assy	CWM2903	CWM2904	CWM2909	CWM2910
61 Case	CNB1576	CNB1552	CNB1576	CNB1552
● 62 Cassette Mechanism Assy	EXK1720	EXK1720	EXK1710	EXK1710

19. EXPLODED VIEW (KEH-1250)

• Parts List (KEH-1250/BS)

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Cord Assy	CDE3167	43	Spacer	CNM2914
2	Screw	BSZ30P060FMC	44	Holder	CNV2521
3	Holder	CNC2913	45	Plate	CNM3285
4-7	.....		46	LCD	CAW1162
8	Cushion	CNM3180	47	Case	CNC3276
9	Resistor	RS1/2P102JL	48	Antenna Cable	CDH1115
10	Cap	CNS1472	49	.....
11	Button (BAND/TUNE)	CAC2544	50	Plug	CKS1222
12	Spacer	CNM3275	51	.....
13	Lens	CNV3024	52	Connector	CDE3064
14	Button (1-6)	CAC2670	53	Shield	CNC3275
15	Grille Unit	CXA4466	54	.....
16	Spring	CBH1397	55	Connector	CDE3527
17	Door	CAT1404	56	Insulator	CNM3154
18	Knob (FADER)	CAA1233	57	.....
19	Knob (VOLUME)	CAA1234	58	Chassis	CNA1397
20	Knob (TONE/BALANCE)	CAA1235	59	.....
21-23	.....		60	Tuner Amp Assy	CWM2911
24	Button	CAC3097	61	Case	CNB1588
25	Screw	BSZ30P120FMC	62	Cassette Mechanism Assy	EXK1710
26	Transistor (Q 911)	2SD1684	63	Button (EJECT)	CAC2545
27	IC (IC 551)	TA8215H-A	64	Button (REW)	CAC2547
28	Heat Sink	CNC3896	65	Button (FF)	CAC2546
29	Volume (VOLUME, VR453)	CCS1195	66	Bracket	CNC3265
30	Volume (TONE, VR451)	CCS1166			
31-33	.....		67	Screw	BSZ26P060FMC
34	Screw	BSZ30P055FUC	68	Bracket	CNC3264
35	Volume (BALANCE, VR452)	CCS1165	69	Holder	CNC3897
36	Holder	CNC3895	70	Plug	CKS1616
37	Key Board Unit	CWM2930	71	Insulator	CNM3036
38	Switch	CNV2519	72	Spacer	CNN-625
39	Lamp (1L 901, 902)	CEL1191	73	Screw	BSZ30P100FMC
40	Lamp (1L 903)	CEL1169	74	Spacer	CNM3356
41	Holder	CNC4040	75	Spacer	CNM3357
42	Connector	CKS-467	76	Spacer	CNM3358

● Exploded View

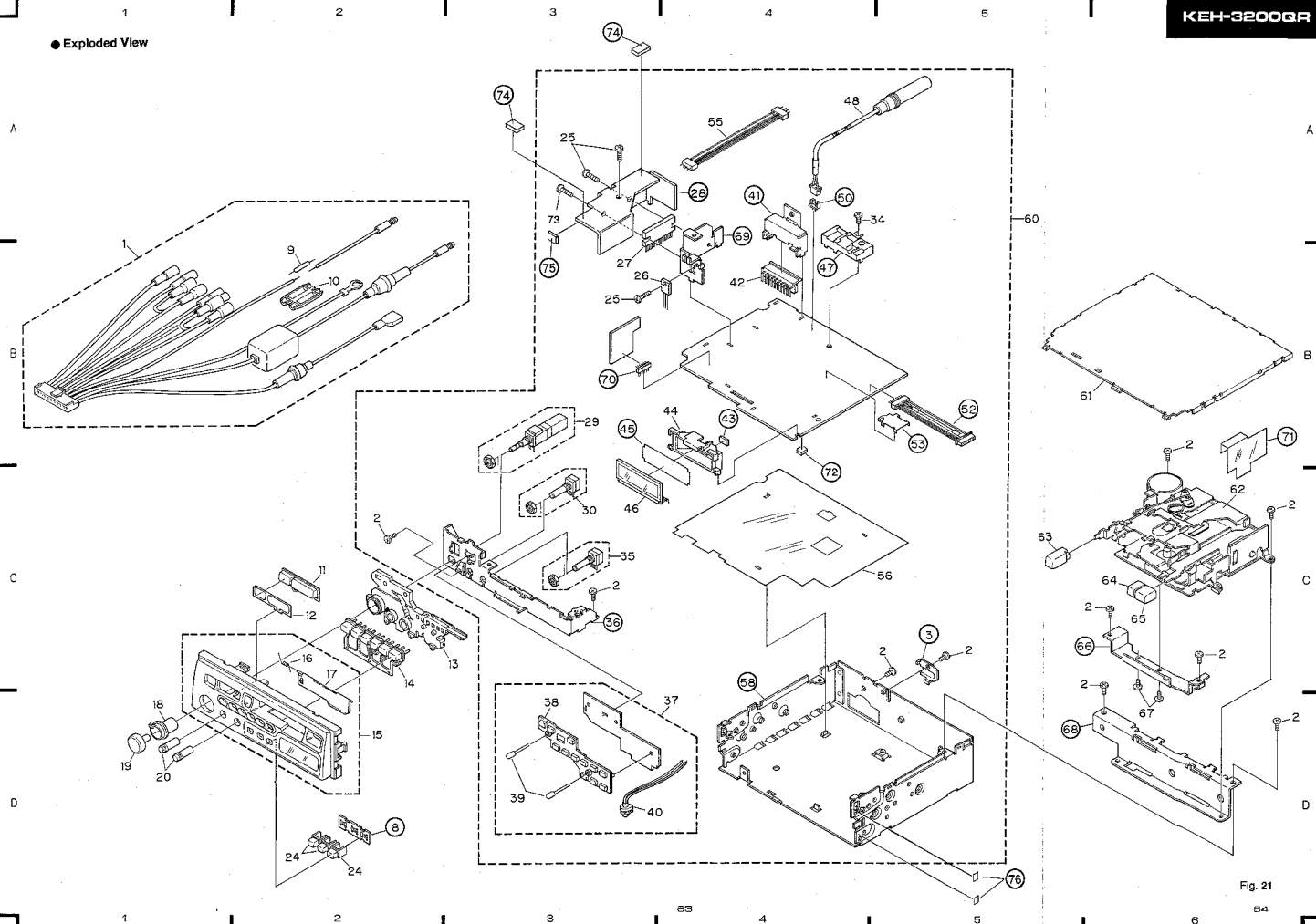


Fig. 21

20. CASSETTE MECHANISM ASSY EXPLODED VIEW (KEH-3200QR, KEH-3250QR)

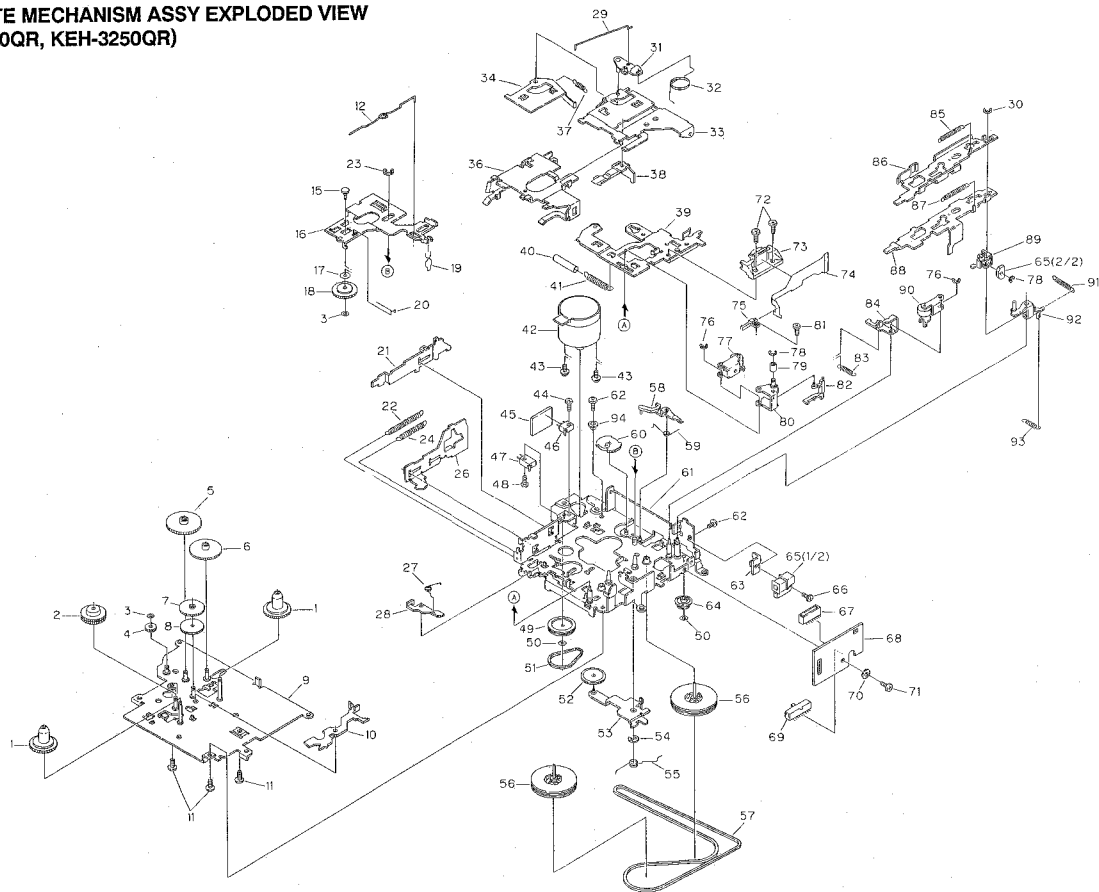


Fig. 22

•Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Reel Unit	EXA1204	41	Spring	EBH1363	81	Screw	CBA1038
2	Gear Unit	EXA1200	42	Motor Unit	EXA1162	82	Arm	ENV1227
3	Washer	CBF1037	43	Screw	PMS26PQ25FUC	83	Spring	EBH1368
4	Gear	ENV1230	44	Screw	CBA1054	84	Arm	ENC1266
5	Gear	ENV1203	45	Gathering P.C. Board	ENX1005	85	Spring	EBH1322
6	Gear	ENV1204	46	Switch	ESH1004	86	Lever	ENC1228
7	Gear	ENV1273	47	Switch	CSN1005	87	Spring	EBH1365
8	Gear	ENV1211	48	Screw	CBA1025	88	Lever	ENC1229
9	Sub Chassis Unit	EXA1197	49	Gear	ENV1229	89	Arm Unit	EXA1158
10	Arm	ENV1210	50	Washer	CBF1038	90	Pinch Roller Unit	EXA1193
11	Screw	BMZ20PQ25PMC	51	Belt	ENT1020	91	Spring	EBH1375
12	Spring	EBH1366	52	Gear	ENV1209	92	Arm Unit	EXA1157
13	.....		53	Arm Unit	EXA1155	93	Spring	EBH1345
14	.....		54	Washer	YE30PUC	94	Collar	ELA1267
15	Shaft	ELA1266	55	Spring	EBH1310			
16	Lever	ENC1269	56	Flywheel Unit	EXA1161			
17	Washer	EBF1015	57	Belt	ENT1018			
18	Gear	ENV1208	58	Arm	ENV1206			
19	Spring	EBH1361	59	Spring	EBH1317			
20	Spring	EBH1362	60	Gear	ENV1205			
21	Lever	ENC1255	61	Chassis Unit	EXA1196			
22	Spring	EBH1359	62	Screw	JPZ20PQ25FNI			
23	Washer	YE25FUC	63	Bracket	ENC1250			
24	Spring	EBH1358	64	Pulley	ENV1207			
25	.....		65	Solenoid	EXP1010			
26	Lever	ENC1256	66	Screw	BBA1023			
27	Spring	EBH1373	67	Plug	CKS1055			
28	Arm	ENC1248	68	Gathering P.C. Board	ENX1004			
29	Spring	EBH1308	69	Switch	ESH1003			
30	Washer	YE15FUC	70	Washer	WH23PMC			
31	Arm Unit	EXA1198	71	Screw	BSZ23PQ40PMC			
32	Spring	EBH1374	72	Screw	CBA1015			
33	Frame	ENC1204	73	Head Unit	EXA1163			
34	Arm	ENC1263	74	P.C. Board	ENP1042			
35	.....		75	Switch	ESN1005			
36	Holder	ENC1257	76	Washer	YE20FUC			
37	Spring	EBH1364	77	Pinch Roller Unit	EXA1194			
38	Lever	ENV1222	78	Washer	YE12FUC			
39	Head Base Unit	EXA1203	79	Roller	ELA1247			
40	Tube		80	Arm Unit	EXA1166			

21. CASSETTE MECHANISM ASSY EXPLODED VIEW
(KEH-2200QR, KEH-2250QR, KEH-1250)

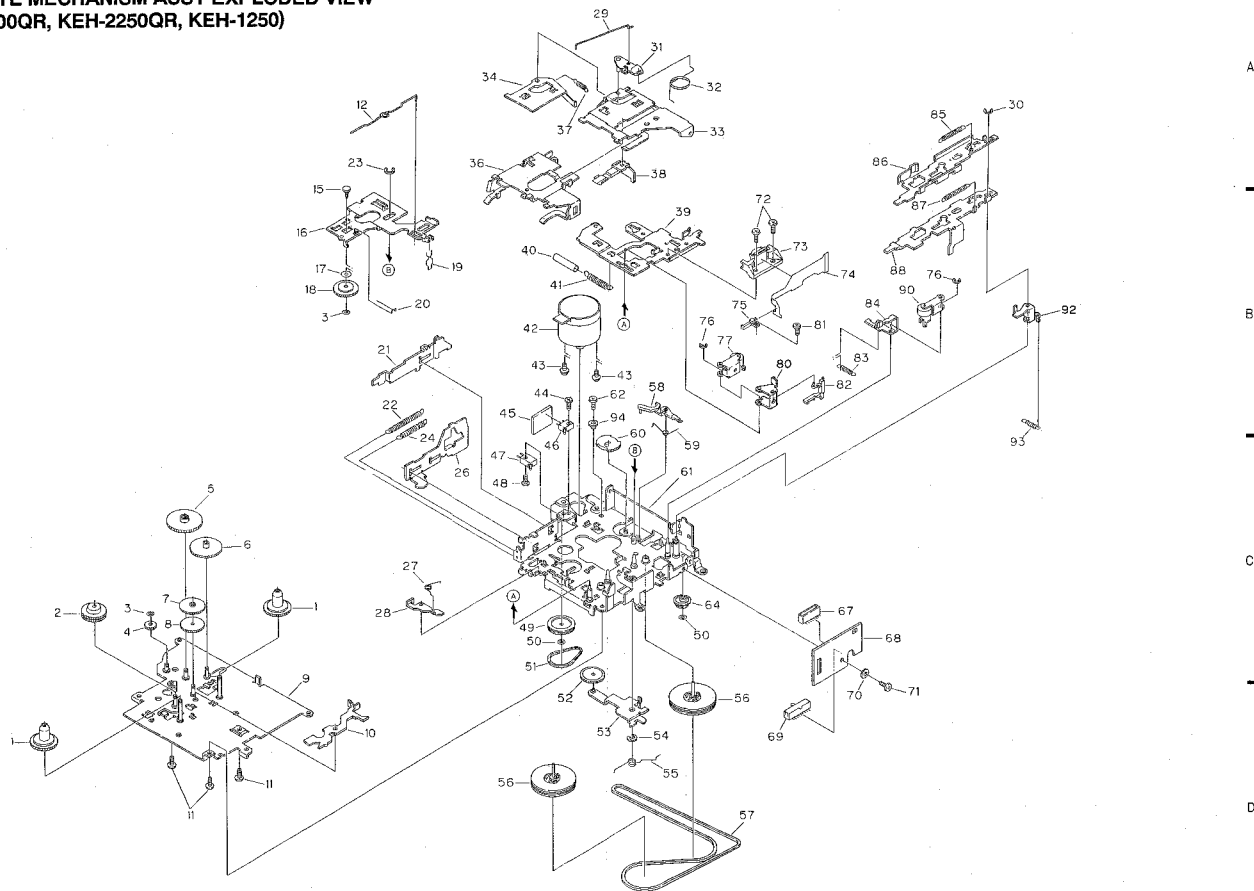


Fig. 23

• Parts List

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Reel Unit	EXA1104	41	Spring	EBH1363
2	Gear Unit	EXA1200	42	Motor Unit	EXA1162
3	Washer	CBF1037	43	Screw	PMS26P025FUC
4	Gear	ENV1230	44	Screw	CBA1054
5	Gear	ENV1203	45	Gathering P.C. Board	ENX1005
6	Gear	ENV1204	46	Switch	ESH1004
7	Gear	ENV1273	47	Switch	CSN1005
8	Gear	ENV1211	48	Screw	CBA1025
9	Sub Chassis Unit	EXA1197	49	Gear	ENV1229
10	Arm	ENV1210	50	Washer	CBF1038
11	Screw	BMZ20P025PMC	51	Belt	ENT1020
12	Spring	EBH1366	52	Gear	ENV1209
13	.....		53	Arm Unit	EXA1155
14	.....		54	Washer	YE30FUC
15	Shaft	ELA1266	55	Spring	EBH1310
16	Lever	ENC1269	56	Plywheel Unit	EXA1161
17	Washer	EBF1015	57	Belt	ENT1018
18	Gear	ENV1208	58	Arm	ENV1206
19	Spring	EBH1361	59	Spring	EBH1317
20	Spring	EBH1362	60	Gear	ENV1205
21	Lever	ENC1255	61	Chassis Unit	EXA1196
22	Spring	EBH1359	62	Screw	JPZ20P025FNI
23	Washer	YE25FUC	63	.....
24	Spring	EBH1358	64	Pulley	ENV1207
25	.....		65	.....
26	Lever	ENC1256	66	.....
27	Spring	EBH1373	67	Plug	CXS1055
28	Arm	ENC1248	68	Gathering P.C. Board	ENX1004
29	Spring	EBH1308	69	Switch	ESH1003
30	Washer	YE15FUC	70	Washer	WH23PMC
31	Arm Unit	EXA1198	71	Screw	BSZ23P040PMC
32	Spring	EBH1374	72	Screw	CBA1015
33	Frame	ENC1204	73	Head Unit	EXA1163
34	Arm	ENC1263	74	P.C. Board	ENP1042
35	.....		75	Switch	ESN1005
36	Holder	ENC1257	76	Washer	YE20FUC
37	Spring	EBH1364	77	Pinch Roller Unit	EXA1194
38	Lever	ENV1222	78	.....
39	Head Base Unit	EXA1203	79	.....
40	Tube		80	Arm	ENC1213

Mark No.	Description	Part No.
81	Screw	CBA1038
82	Arm	ENV1227
83	Spring	EBH1368
84	Arm	ENC1266
85	Spring	EBH1365
86	Lever	ENC1206
87	Spring	EBH1365
88	Lever	ENC1207
89	.....
90	Pinch Roller Unit	EXA1193
91	.....
92	Arm	ENC1264
93	Spring	EBH1367
94	Collar	ELA1287

22. PACKING METHOD

22.1 KEH-3200QR, KEH-3250QR, KEH-2200QR, KEH-2250QR

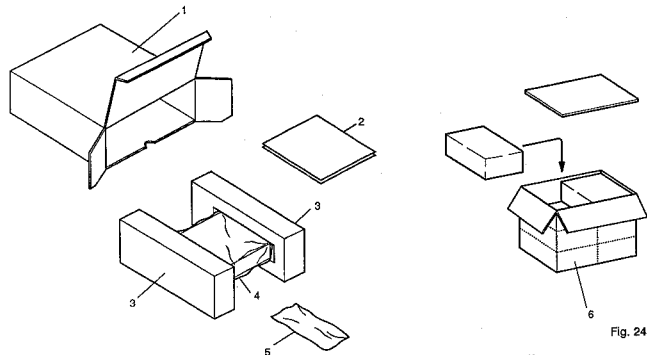


Fig. 24

● Parts List

*:Non spare part

Mark No.	Description	KEH-3200QR/UC	KEH-3250QR/ES	KEH-2200QR/UC	KEH-2250QR/ES
		Part No.	Part No.	Part No.	Part No.
1	Carton	CHG2110	CHG2112	CHG2111	CHG2113
2-1	Owner's Manual	CRD1534	CRD1535	CRD1534	CRD1535
2-2	Owner's Manual	CRB1238	.....	CRB1238	.....
2-3	Card	ARY1048	CRY-062	ARY1048	CRY-062
3	Styrofoam	CHP1413	CHP1413	CHP1413	CHP1413
4	Cover	CEG1113	CEG1113	CEG1113	CEG1113
5	Accessory Assy	CEA1584	CEA1584	CEA1584	CEA1584
6	Contain Box	CHL2110	* CHL2112	CHL2111	* CHL2113

5 Accessory Assy CEA1584		
Mark No.	Description	Part No.
5-1	Screw(×1)	CBA-102
5-2	Screw(×1)	CBA1002
5-3	Strap	CNF-111
5-4	Bush	CNV1009
5-5	Nut(×2)	NF50FMC
5-6	Shaft	CLP1064
* 5-7	Polyethylene Bag	CEG1011

2-1 Owner's Manual

Part No.	Model	Language
CRD1534	KEH-3200QR/UC KEH-2200QR/UC	English, French
CRD1535	KEH-3250QR/ES KEH-2250QR/ES	English, French, Spanish, Arabic
CRB1238	KEH-3200QR/UC KEH-2200QR/UC	Spanish

22.2 KEH-1250

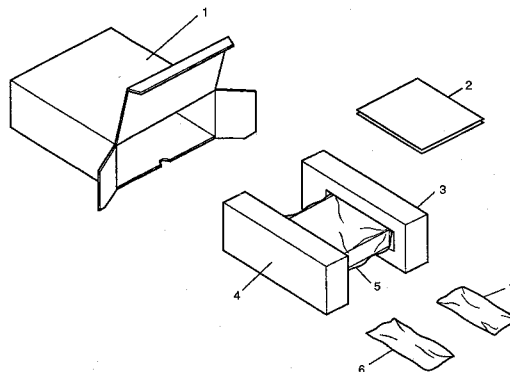


Fig. 25

● Parts List

*:Non spare part

Mark No.	Description	Part No.	Mark No.	Description	Part No.
1	Carton	CHG2114	6-2-1	Screw(×4)	BMZ40P080FMC
2	Owner's Manual (English, French, Spanish, Arabic)	CRD1536	6-2-2	Screw(×4)	BMZ50P080FMC
3	Styrofoam	CHP1275	6-2-3	Screw(×4)	CMZ50P080FMC
4	Styrofoam	CHP1276	6-2-4	Screw(×1)	RMF40P080FUC
5	Cover	CEG1113	* 6-2-5	Polyethylene Bag	CEG-127
6	Accessory Assy	CEA1320	* 6-3	Polyethylene Bag	E36-615
6-1	Cord	CRD1289	7	Cord Assy	CDE3167
* 6-2	Screw Assy	CEA1361			

23. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/8S□□□□, RS1/10S□□□□

Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

● KEH-3200QR/UC, KEH-3250QR/ES

Tuner	Amp	Unit
Consists of		
Tuner	Amp	P.C.Board
Volume	P.C.Board	
Dolby NR	P.C.Board	

Unit Number :

Unit Name : Tuner Amp Unit(KEH-3200QR/UC)

MISCELLANEOUS

-----	Circuit Symbol	& No.	Part Name	-----	Part No.
IC 1			LA1883M		
IC 2			CWW1116		
IC 251			LA3161P		
IC 301			CXA1102P		
IC 401			AN6263N		
IC 451			NJM2068D		
IC 551			TA8215H-A		
IC 901			NJM2068D		
IC 951			PD4275		
Q 1			3SK195		
Q 2			2SC2999		
Q 3			2SA1309A		
Q 151			2SC2412K		
Q 152			DTA124EK		
Q 153			DTC114EK		
Q 201			2SK435		
Q 202			2SC1740S		
Q 251			2SD1992A		
Q 301 401 402			XDC124ES		
Q 303 304 451 452 453 454			2SC1740S		
Q 455 456			DTC343TS		
Q 457 458			DTC323TK		
Q 459			DTA144TK		
Q 460			DTC113ZS		
Q 502			2SK330		
Q 503 522			2SC1740S		
Q 551			DTC114EK		
Q 801			DTA144EK		
Q 803 804			DTC323TK		
Q 911			2SD1684		
Q 912			2SA1150		
Q 913			DTC143ES		
Q 951			DTC113ZS		
Q 952			XDA124ES		
D 1			1SV128A-BB		

	Circuit Symbol	& No.	Part Name	Part No.								
D 2	3	4	Variable Capacitance	Diode	SVC203-AB							
D 5					MA157-MR							
D 151					HZS4R3EB3							
D 201	202	203	204		1SS133							
D 205			Variable Capacitance	Diode	KV1235Z3							
D 251					1SS133							
D 252	911				HZS9R1JB2							
D 451	452	453	454	455	456	457	458	459	462		1SS133	
D 457											WG713	
D 460											MA700	
D 461											RD4R7J5B2	
D 501											RD3R0ESB2	
D 901											ERC04-02F	
D 902											ERA15-02Y1	
D 954	956	957	958	959							WG713	
D 960	962	963									WG713	
D 961											RD5R6JSB2	
D 964											MA700	
D 965											RD5R1JSB2	
D 967											RD6R2JSB1	
L 1											Inductor	CTF1065
L 2											Coil	CTC1022
L 3											Coil	CTC1020
L 4											Coil	CTC1056
L 5											OSC Coil	CTC1024
L 6											Inductor	LAU150K
L 201											Ferrit-inductor	LAU4R7K
L 202											Ferrit-inductor	LAU330K
L 203											Ferrit-inductor	CTF-161
L 951											Ferrit-inductor	LAU101K
T 1											Coil	CTC1064
T 51											Coil	CTC1071
T 201											Coil	CTB1056
T 202											Coil	CTB1068
T 203	204										Coil	CTB1058
T 205											Coil	CTE1041
T 206											Coil	CTE1042
T 210											Coil	CTB1061
CF 1											Ceramic Filter	CTF-182
CF 51	52										Ceramic Filter	CTF1130
CF201											Filter	CTF1085
H 1											Surge Protector	DSP-201M
X 151											Ceramic Resonator	CS51066
X 951											Crystal Resonator	CS51077
VR151											Semi-fixed 150k Ω (B)	VRMB6VS154

Circuit Symbol & No.	Part Name	Part No.	Circuit Symbol & No.	Part Name	Part No.
VR152	Semi-fixed 33kΩ(B)	VRMB6VS333	R 262		RS1/10S222J
VR301 302	Semi-fixed 33kΩ(B)	VRMB6VS333	R 263		RS1/8S0R0J
VR451 452	Volume 20kΩ(U)	CCS1164	R 264		RS1/10S0R0J
VR453	Volume/Switch 20kΩ(B), 50kΩ(G), 200Ω	CCS1193	R 302		RS1/10S433J
B 951	Battery	CEX1015	R 303 304		RD1/4PS433JL
	LCD	CAW1162	R 305 306		RD1/4PS163JL
			R 307		RS1/10S473J
			R 308		RD1/4PS472JL
			R 310		RS1/10S221J
			R 311 312		RD1/4PS272JL
RESISTORS					
Circuit Symbol & No.	Part Name	Part No.	Circuit Symbol & No.	Part Name	Part No.
R 1 3 5		RS1/10S223J	R 313 314		RS1/10S332J
R 2		RD1/4PS151JL	R 315 316		RS1/10S104J
R 4 159		RS1/10S333J	R 401 402		RS1/10S822J
R 6		RD1/4PS473JL	R 403		RS1/10S684J
R 8		RS1/10S563J	R 404		RS1/10S510J
R 9		RD1/4PS563JL	R 405		RD1/4PS103JL
R 10 157 160		RS1/10S103J	R 407		RS1/10S0R0J
R 13		RD1/4PS271JL	R 451 452 479		RS1/10S473J
R 14		RS1/10S561J	R 453 454 465 466		RS1/10S331J
R 15		RS1/10S683J	R 455		RD1/4PS182JL
R 16		RS1/10S474J	R 456		RS1/10S182J
R 17		RS1/8S271J	R 457		RD1/4PS222JL
R 18 51		RS1/10S331J	R 458 477 478		RS1/10S222J
R 20 155		RS1/10S182J	R 459 460		RS1/10S333J
R 21		RS1/10S101J	R 461 462		RS1/10S474J
R 22		RS1/10S153J	R 463 464		RS1/8S122J
R 23		RD1/4PS223JL	R 467 468		RD1/4PS153JL
R 24		RD1/4PS682JL	R 469 470		RS1/10S102J
R 25		RS1/10S472J	R 471 472 475 476		RS1/10S123J
R 26		RD1/4PS103JL	R 473 474		RS1/10S332J
R 27		RS1/10S510J	R 480		RD1/4PS104JL
R 28 59		RS1/10S0R0J	R 481		RD1/4PS222JL
R 52		RD1/4PS333JL	R 482		RD1/4PS362JL
R 53		RD1/4PS104JL	R 483 484		RS1/10S561J
R 54		RD1/4PS123JL	R 487		RS1/10S0R0J
R 55 102 104		RS1/10S682J	R 489		RS1/10S563J
R 56		RD1/4PS562JL	R 490		RS1/10S0R0J
R 57		RS1/10S473J	R 491		RS1/10S273J
R 58		RS1/10S513J	R 492		RS1/8S0R0J
R 101		RS1/10S133J	R 493		RS1/10S472J
R 103		RS1/10S183J	R 501 955 966		RD1/4PS472JL
R 105		RS1/10S752J	R 503 506		RD1/4PS102JL
R 153		RD1/4PS562JL	R 504		RS1/10S472J
R 154		RS1/10S332J	R 505		RD1/4PS152JL
R 156		RS1/10S684J	R 551 552		RS1/10S332J
R 158		RS1/10S822J	R 553 554		RS1/10S123J
R 201 202 211		RS1/10S103J	R 555 556		RS1/10S471J
R 203		RD1/4PS513JL	R 557 558 559 560		RD1/4PS472JL
R 204 219		RD1/4PS103JL	R 561		RS1/10S102J
R 205		RS1/10S561J	R 562		RD1/4PS222JL
R 210		RS1/10S473J	R 801 805 806		RS1/10S392J
R 220		RD1/4PS752JL	R 802		RS1/10S472J
R 221		RS1/10S104J	R 803 804		RS1/10S223J
R 222		RD1/4PS220JL	R 807 808 811 812		RS1/10S153J
R 223		RS1/10S472J	R 809 810		RS1/10S751J
R 224		RS1/10S0R0J	R 901		RD1/2PS3R3JL
R 251 252		RS1/10S513J	R 911 964		RD1/4PS331JL
R 255 256		RS1/10S470J	R 912		RD1/4PS221JL
R 257 258		RS1/10S472J	R 913		RS1/10S103J
R 259 260		RS1/10S104J	R 914 965		RS1/10S222J

-----	Circuit Symbol	& No.	Part Name	-----	Part No.	-----	Circuit Symbol	& No.	Part Name	-----	Part No.
R 951					RS1P151JL	C 224					CEA3R3M50LS
R 953					RS110S331J	C 225 232					CKSQYB473K25
R 956					RD14PS474JL	C 228					CEA220M16LS
R 959					RS110S223J	C 231					CQPA431G2A
R 960					RD14PS222JL	C 251 252					CKSQYB821K50
R 961					RD14PS333JL	C 253 254					CEA2R2M50LS2
R 962					RD14PS473JL	C 255					CEA470M10LS
R 963					RD14PS103JL	C 256					CEA470M10L2
R 967					RS110S0R0J	C 257 259					CKSQYB333K50
R 969					RS110S2R2J	C 261					CEA221M10L2
R 970					RS18S0R0J	C 262					CEA101M10L2
CAPACITORS						C 301 302 303 304					CEA4R7M35LS
						C 305 306					CEAR68M50LS2
						C 307 308					CEA101M10LS
						C 310					CEA100M16LS2
C 1 3 56					CCSQCH220J50	C 311 312					CKSQYB223K50
C 2 53 58					CKSQYF473Z50	C 401					CKSQYB103K50
C 4 25					CCSQCH330J50	C 402					CCSQCH330J50
C 5					CCSQTH090D50	C 403					CEA330M10LS
C 6					CCSQTH070D50	C 404					CEA0R1M50LS2
C 7					CKSQYB222K50	C 451 452 467 477					CEA100M16LS2
C 8 22 51 54 59 105 154					CKSQYB223K50	C 453 454					CEA0R1M50LS2
C 9					CCSQTH150J50	C 455 456					CEAR47M30LS2
C 10					CCSQSL271J50	C 457 458					CKSQYB153K50
C 11 19 101 164					CKSQYB103K50	C 459 460					CKSQYB393K25
C 12 24					CCSQCH470J50	C 461 462					CEALNP2R2M35
C 13					CEA3R3M50LS	C 463 464					CEAR22M50L2
C 14					CKSQYB102K50	C 468					CEA010M50LS2
C 15					CCSQCH080D50	C 469 470					CCSQCH330J50
C 16					CCSQCH100D50	C 471 472					CEA4R7M35LS
C 17					CCSQCH330J50	C 473 474					CCSQCH101J50
C 18					CCSQCH150J50	C 475 476					CEAR22M50LS2
C 20					CKSQYF104Z25	C 478					CEA470M10L2
C 21					CKSQYB393K25	C 502					CKSQYB103K50
C 23					CKSQYB393K25	C 503			4.7 μ F/16V		CCH1005
C 27 52					CEA101M10LS	C 551 552					CKSQYB102K50
C 55					CEA010M50LS2	C 553 554					CEHAQ47M50
C 57					CEAR47M50LS2	C 555 556					CEHAQ470M25
C 61					CKSQYB473K50	C 557 558 559 560					CFTNA224J50
C 102					CEA470M16LS	C 561					CEHAQ220M50
C 103					CKSQYB182K50	C 562					CEHAQ101M10
C 104					CKSQYB682K50	C 801 802					CEA2R2M50LS2
C 106					CKSQYB222K50	C 803					CEA470M10L2
C 151 152					CKSQYB223K50	C 905 906					CCSQCH101J50
C 153					CKSQYB332K50	C 907 908					CEA100M16LS2
C 155 156 157					CEA010M50LS2	C 901					CEHAQ472M16
C 158					CEAR22M50LS2	C 902					CKSQYF473Z50
C 159					CEA0R1M50LS2	C 903					CEA102M16L2
C 161					CEA100M16LS2	C 911 913			330 μ F/10V		CCH1128
C 182 163					CKSQYB152K50	C 912					CEA101M10LS
C 201					CKSQYB103K50	C 951 952					CCSQCH100D50
C 202					CKSQYB222K50	C 953					CKSQYF473Z50
C 203					CCSQCH220J50	C 954					CKSQYB473K50
C 204 216 227 229 230					CKSQYB223K50	C 955					CKDYF223Z50
C 205 226					CKSQYF473Z50	C 956					CEA331M6R3L2
C 206					CEA470M16LS	C 959					CKSQYB223K50
C 207 209					CCSQTH090D50						
C 208					CCSQCH010C50						
C 217					CCSQRH820J50						
C 218					CCSQWJ180J50						
C 222					CEAR47M50LS2						

Unit Number :
Unit Name : Key Board Unit

Circuit Symbol	&No.	Part Name	Part No.
IL 901 902		Lamp14V40mA	CEL1191
IL 903		Lamp14V40mA	CEL1169

Unit Number :
Unit Name : P.C.Board(A)

Circuit Symbol	& No.	Part Name	Part No.
S 2		Switch(FWD/REV)	ESH1003
D 1			1SR-35-100A

Unit Number :
Unit Name : P.C.Board(B)

Circuit Symbol	& No.	Part Name	Part No.
S 3		Switch(TAPE/TUN)	ESH1004
S 4		Switch(MUTE)	CSN1005

Miscellaneous Parts List

Circuit Symbol	& No.	Part Name	Part No.
S 1		Switch(MUTE)	ESN1005
M 1		Motor Unit	EXA1162
HD 1		Head Unit	EXA1163
SO 1		Solenoid	EXP1010

Tuner Amp Unit

KEH-3200QR/JC		KEH-3250QR/ES
Circuit Symbol & No.	Part No.	Part No.
IC2	CWW1118	.....
D952,968	.....	WG713
D954	WG713	.....
R22	RS1/10S153J	RS1/10S223J
R23	RD1/4PS223JL	RD1/4PS472JL
R56	RD1/4PS562JL	RD1/4PS153JL
R467,468	RD1/4PS153JL	RD1/4PS562JL
C151,152	CKSQYB223K50	CKSQYB153J50

●KEH-2200QR/UC, KEH-2250QR/ES

Tuner Amp Unit
Consists of
Tuner Amp P.C.Board
Volume P.C.Board

Unit Number :

Unit Name : Tuner Amp Unit(KEH-2200QR/UC)

MISCELLANEOUS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
IC 1		LA1983M		
IC 251		LA3161P		
IC 451		NUM2068D		
IC 551		TA8215H-A		
IC 801		NUM2068D		
IC 951		PD4275		
Q 1		3SK195		
Q 2		2SC2999		
Q 3		2SA1309A		
Q 151		2SC2412K		
Q 152		DTA124EK		
Q 153		DTG114EK		
Q 201		2SK435		
Q 202		2SC1740S		
Q 251		2SD1992A		
Q 451 452		2SC1740S		
Q 453 454		2SC1740S		
Q 455 456		DTG343TS		
Q 457 458		DTG323TK		
Q 459		DTA144TK		
Q 460		DTG113ZS		
Q 502		2SK330		
Q 503 522		2SC1740S		
Q 551		DTG114EK		
Q 801		DTA144EK		
Q 803 804		DTG323TK		
Q 911		2SD1684		
Q 912		2SA1150		
Q 913		DTG143ES		
Q 951		DTG113ZS		
Q 952		XDA124ES		
D 1		1SV128A-BB		
D 2 3 4	Variable Capacitance Diode	SVC203-AB		
D 5		MA157-MR		
D 151		HZS4R3EB3		
D 201 202 203 204		1SS133		
D 205	Variable Capacitance Diode	KV1235Z3		
D 251		1SS133		
D 252 911		HZS9R1JB2		
D 451 452 453 454 455 456 457 458 459 462		1SS133		
D 457		1SS133		
D 460		MA700		
D 461		RD4R7JSB2		
D 501		RD3R0ESB2		
D 901		ERC04-02F		
D 902		ERA15-02Y1		
D 954		WG713		
D 958 959 960 962 963		WG713		
D 961		RD5R6JSB2		
D 964		MA700		
D 965		RD5R1JSB2		

-----	Circuit Symbol & No.	Part Name	-----	Part No.
D 967				RD8R2JSB1
L 1		Inductor		CTF1085
L 2		Coil		CTC1022
L 3		Coil		CTC1020
L 4		Coil		CTC1056
L 5		OSC Coil		CTC1024
L 6		Inductor		LAU150K
L 201		Ferrit-Inductor		LAU4R7K
L 202		Ferrit-Inductor		LAU330K
L 203		Ferrit-Inductor		CTF-161
L 951		Ferrit-Inductor		LAU101K
T 1		Coil		CTC1064
T 51		Coil		CTC1071
T 201		Coil		CTB1056
T 202		Coil		CTB1008
T 203 204		Coil		CTB1058
T 205		Coil		CTE1041
T 206		Coil		CTE1042
T 210		Coil		CTB1061
CF 1		Ceramic Filter		CTF-182
CF 51 52		Ceramic Filter		CTF1130
CF201		Filter		CTF1085
H 1		Surge Protector		OSP-201M
X 151		Ceramic Resonator		CSS1066
X 951		Crystal Resonator		CSS1077
VR151		Semi-fixed 150kΩ (B)		VRMB6VS154
VR152		Semi-fixed 33kΩ (B)		VRMB6VS333
VR451 452		Volume 20kΩ (U)		CCS1164
VR453	Volume/Switch	20kΩ (B), 50kΩ (G), 200Ω		CCS1193
B 951		Battery		CX1015
		LCD		CAW1162

RESISTORS

-----	Circuit Symbol & No.	Part Name	-----	Part No.
R 1 3 5				RS1/10S223J
R 2				RD1/4PS151JL
R 4 159				RS1/10S333J
R 6				RD1/4PS473JL
R 8				RS1/10S563J
R 9				RD1/4PS563JL
R 10 157 160				RS1/10S103J
R 13				RD1/4PS271JL
R 14				RS1/10S561J
R 15				RS1/10S683J
R 16				RS1/10S474J
R 17				RS1/8S271J
R 18 51				RS1/10S331J
R 20 155				RS1/10S182J
R 21				RS1/10S101J
R 22				RS1/10S223J
R 23				RD1/4PS472JL
R 24				RD1/4PS662JL
R 25				RS1/10S472J
R 26				RD1/4PS103JL
R 27				RS1/10S510J
R 28 59				RS1/10S0R0J
R 52				RD1/4PS333JL
R 53				RD1/4PS104JL
R 54				RD1/4PS123JL

----- Circuit Symbol & No.	Part Name	----- Part No.	----- Circuit Symbol & No.	Part Name	----- Part No.
R 55 102 104		RS1/10S682J	R 557 558 559 560		RD1/4PS4R7JL
R 56		RD1/4PS562JL	R 561		RS1/10S102J
R 57		RS1/10S473J	R 562		RD1/4PS222JL
R 58		RS1/10S513J	R 801 805 806		RS1/10S362J
R 101		RS1/10S133J	R 802		RS1/10S472J
R 103		RS1/10S183J	R 803 804		RS1/10S223J
R 105		RS1/10S752J	R 807 808 811 812		RS1/10S153J
R 153		RD1/4PS562JL	R 909 910		RS1/10S751J
R 154		RS1/10S322J	R 901		RD1/2PS3R3JL
R 156		RS1/10S684J	R 911 964		RD1/4PS331JL
R 158		RS1/10S822J	R 912		RD1/4PS221JL
R 201 202 211		RS1/10S103J	R 913		RD1/10PS103J
R 203		RD1/4PS513JL	R 914 965		RS1/10S222J
R 204 219		RD1/4PS103JL	R 951		RS1P151JL
R 205		RS1/10S561J	R 953		RS1/10S331J
R 210		RS1/10S473J	R 956		RD1/4PS474JL
R 220		RD1/4PS752JL	R 959		RS1/10S223J
R 221		RS1/10S104J	R 960		RD1/4PS222JL
R 222		RD1/4PS220JL	R 961		RD1/4PS333JL
R 223		RS1/10S472J	R 962		RD1/4PS473JL
R 224		RS1/10S0R0J	R 963		RD1/4PS103JL
R 251 252		RS1/10S513J	R 967		RS1/10S0R0J
R 255 256		RS1/10S470J	R 969		RS1/10S2R2J
R 257 258		RS1/10S472J	R 970		RS1/8S0R0J
R 259 260		RS1/10S104J			
R 262		RS1/10S222J			
R 263		RS1/8S0R0J			
R 264		RS1/10S0R0J			
R 351 352 355		RD1/4PS102JL			
R 353 354		RD1/4PS153JL			
R 451 452 479		RS1/10S473J			
R 453 454 465 466		RS1/10S331J			
R 455		RD1/4PS182JL			
R 456		RS1/10S182J			
R 457		RD1/4PS222JL			
R 458 477 478		RS1/10S222J			
R 459 460		RS1/10S333J			
R 461 462		RS1/10S474J			
R 463 464		RS1/8S122J			
R 467 468		RD1/4PS153JL			
R 469 470		RS1/10S102J			
R 471 472 475 476		RS1/10S123J			
R 473 474		RS1/10S332J			
R 480		RD1/4PS104JL			
R 481		RD1/4PS222JL			
R 482		RD1/4PS382JL			
R 483 484		RS1/10S561J			
R 487		RS1/10S0R0J			
R 489		RS1/10S563J			
R 490		RS1/10S0R0J			
R 491		RS1/10S273J			
R 492		RS1/8S0R0J			
R 493		RS1/10S472J			
R 501 955 956		RD1/4PS472JL			
R 503 506		RD1/4PS102JL			
R 504		RS1/10S472J			
R 505		RD1/4PS152JL			
R 551 552		RS1/10S332J			
R 553 554		RS1/10S123J			
R 555 556		RS1/10S471J			

CAPACITORS

----- Circuit Symbol & No.	Part Name	----- Part No.
C 1 3 56		CCSQCH220J50
C 2 53 58		CKSQYF470Z50
C 4 25		CCSQCH330J50
C 5		CCSQTH090D50
C 6		CCSQTH070D50
C 7		CKSQYB222K50
C 8 22 51 54 59 105 154		CKSQYB223K50
C 9		CCSQTH150J50
C 10		CCSQSL271J50
C 11 19 101 164		CKSQYB103K50
C 12 24		CCSQCH470J50
C 13		CEA93M50L5
C 14		CKSQYB102K50
C 15		CCSQCH080D50
C 16		CCSQCH100D50
C 17		CCSQCH330J50
C 18		CCSQCH150J50
C 20		CKSQYF104Z25
C 21 23		CKSQYB393K25
C 27 52		CEA101M10L5
C 55		CEA010M50L52
C 57		CEA947M50L52
C 61		CKSQYB473K50
C 102		CEA47M16L5
C 103		CKSQYB182K50
C 104		CKSQYB682K50
C 106		CKSQYB222K50
C 151 152		CKSQYB223K50
C 153		CKSQYB332K50
C 155 156 157		CEA010M50L52
C 158		CEA922M50L52
C 159		CEA091M50L52
C 161		CEA100M16L52
C 162 163		CKSQYB152K50
C 201		CKSQYB103K50
C 202		CKSQYB222K50

----- Circuit Symbol & No.	Part Name	----- Part No.
C 203		CCSQCH220J50
C 204 216 227 229 230		CKSQYB223K50
C 205 228		CKSQYF473Z50
C 206		CEA470M16LS
C 207 209		CCSQTH090D50
C 208		CCSQCH010C50
C 217		CCSQRH820J50
C 218		CCSQUJ180J50
C 222		CEA47M50LS2
C 224		CEA3R3M50LS
C 225 232		CKSQYB473K25
C 228		CEA220M16LS
C 231		CQPA431G2A
C 251 252		CKSQYB821K50
C 253 254		CEA2R2M50LS2
C 255		CEA470M10LS
C 256		CEA470M10L2
C 257 258		CKSQYB333K50
C 261		CEA221M10L2
C 262		CEA101M10L2
C 351 352		CEA100M16L2
C 353		CEA4R7M35L2
C 451 452 467 477		CEA100M16LS2
C 453 454		CEA0R1M50LS2
C 455 456		CEA4R7M50LS2
C 457 458		CKSQYB153K50
C 459 460		CKSQYB393K25
C 461 462		CEALNP2R2M35
C 463 464		CEAR22M50L2
C 468		CEA010M50LS2
C 471 472		CEA4R7M35LS
C 469 470		CCSQCH330J50
C 473 474		CCSQCH101J50
C 475 476		CEA2R2M50LS2
C 478		CEA470M10L2
C 502	4.7 μ F/16V	CKSQYB103K50
C 503		CCH1005
C 551 552		CKSQYB102K50
C 553 554		CEHAQ4R7M50
C 555 556		CEHAQ470M25
C 557 558 559 560		CFTNA224J50
C 561		CEHAQ220M50
C 562		CEHAQ101M10
C 801 802		CEA2R2M50LS2
C 803		CEA470M10L2
C 805 806		CCSQCH101J50
C 807 808		CEA100M16LS2
C 901		CEHAQ472M16
C 902		CKSQYF473Z50
C 903		CEA102M16L2
C 911 913	330 μ F/10V	CCH1128
C 912		CEA101M10LS
C 951 952		CCSQCH100D50
C 953		CKSQYF473Z50
C 954		CKSQYB473K50
C 955		CKDYF223Z50
C 956		CEA331M6R3L2
C 959		CKSQYB223K50

Unit Number :
Unit Name : Key Board Unit

----- Circuit Symbol & No.	Part Name	----- Part No.
IL 901 902	Lamp 14v40mA	CEL1191
IL 903	Lamp 14v40mA	CEL1169

Unit Number :
Unit Name : P.C.Board(A)

----- Circuit Symbol & No.	Part Name	----- Part No.
S 2	Switch(FWD/REV)	ESH1003

Unit Number :
Unit Name : P.C.Board(B)

----- Circuit Symbol & No.	Part Name	----- Part No.
S 3	Switch(TAPE/TUN)	ESH1004
S 4	Switch(MUTE)	CSN1005

Miscellaneous Parts List

----- Circuit Symbol & No.	Part Name	----- Part No.
S 1	Switch(MUTE)	ESN1005
M 1	Motor Unit	EXA1162
HD 1	Head Unit	EXA1163

Tuner Amp Unit

	KEH-2200QRAUC	KEH-2250QRE/ES
Circuit Symbol & No.	PartNo.	PartNo.
IC801	NJM2068D	.....
Q453,454	2SC1740S	.....
Q801	DTA144EK	.....
Q803,804	DTC323TK	.....
D457	1SS133	WG713
D460	MA700	.....
D952,968	.....	WG713
VR453	CCS1193	CCS1194
R56	RD1/4PS562JL	RD1/4PS153JL
R467,468	RD1/4PS153JL	RD1/4PS562JL
R469	RS1/10S563J	.....
R491	RS1/10S273J	.....
R601,805,806	RS1/10S392J	.....
R802	RS1/10S472J	.....
R803,804	RS1/10S223J	.....
R807,808,811,812	RS1/10S153J	.....
R809,810	RS1/10S751J	.....
C151,152	CKSQYB223K50	CKSQYB153K50
C477	CEA100M16LS2	.....
C801,802	CEA2R2M50LS2	.....
C803	CEA470M10L2	.....
C805,806	CCSQCH101J50	.....
C807,808	CEA100M16LS2	.....

●KEH-1250/ES

Tuner Amp Unit	
Consists of	
Tuner Amp	P.C.Board
Volume	P.C.Board

Unit Number :
Unit Name : Tuner Amp Unit

MISCELLANEOUS

Circuit Symbol & No.	Part Name	Part No.
IC 1	LA1883M	
IC 251	LA3161P	
IC 451	NJM2068D	
IC 551	TA8215H-A	
IC 951	PD4275	
Q 1	3SK195	
Q 2	2SC2999	
Q 3	2SA1309A	
Q 151	2SC2412K	
Q 152	DTA124EK	
Q 153	DTC114EK	
Q 201	2SK435	
Q 202	2SC1740S	
Q 251	2SD1992A	
Q 455 456	DTC343TS	
Q 457 458	DTC323TK	
Q 459	DTA144TK	
Q 460	DTC113ZS	
Q 502	2SK330	
Q 503 522	2SC1740S	
Q 551	DTC114EK	
Q 911	2SD1684	
Q 912	2SA1150	
Q 913	DTC143ES	
Q 951	DTC113ZS	
Q 952	XDA124ES	
D 1	1SV125A-BB	
D 2 3 4	Variable Capacitance Diode	SVC200-AB
D 5	MA157-MR	
D 151	HZS4R3EB3	
D 201 202 203 204	Variable Capacitance Diode	1SS133
D 205	KV1235Z3	
D 251	1SS133	
D 252 911	HZS9R1JB2	
D 451 452 453 454 455 457 458 459 462	1SS133	
D 461	RD4R7JSB2	
D 501	RD3R0ESB2	
D 901	ERC04-02F	
D 902 903	ERA15-02VH	
D 952 968	WG713	
D 958 959 960 962 963	WG713	
D 961	RD5R6JSB2	
D 965	RD6R1JSB2	
D 967	RD8R2JSB1	
L 1	Inductor	CTF1065
L 2	Coil	CTC1022
L 3	Coil	CTC1020
L 4	Coil	CTC1056
L 5	OSC Coil	CTC1024
L 6	Inductor	LAU150K

Circuit Symbol & No.	Part Name	Part No.
L 201	Ferr-Inductor	LAU4R7K
L 202	Ferr-Inductor	LAU330K
L 203	Ferr-Inductor	CTF-161
L 951	Ferr-Inductor	LAU101K
T 1	Coil	CTC1064
T 51	Coil	CTC1071
T 201	Coil	CTB1056
T 202	Coil	CTB1008
T 203 204	Coil	CTB1058
T 205	Coil	CTE1041
T 206	Coil	CTE1042
T 210	Coil	CTB1061
CF 1	Ceramic Filter	CTF-182
CF 51 52	Ceramic Filter	CTF1130
CF201	Filter	CTF1085
H 1	Surge Protector	DSP-201M
X 151	Ceramic Resonator	CSS1066
X 951	Crystal Resonator	CSS1077
VR151	Semi-fixed 150kΩ (B)	VRMB6VS154
VR152	Semi-fixed 33kΩ (B)	VRMB6VS333
VR451	Volume 20kΩ (A)	CCS1166
VR452	Volume 50kΩ (G)	CCS1165
VR453	Volume/Switch 20kΩ (B), 200Ω	CCS1195
	LCD	CAW1182

RESISTORS

Circuit Symbol & No.	Part Name	Part No.
R 1 3 5		RS1/10S223J
R 2		RD1/4PS151JL
R 4 159		RS1/10S333J
R 6		RD1/4PS473JL
R 8		RS1/10S563J
R 9		RD1/4PS563JL
R 10		RS1/10S823J
R 13		RD1/4PS271JL
R 14		RS1/10S561J
R 16		RS1/10S474J
R 17		RS1/8S271J
R 18 51		RS1/10S331J
R 20 155		RS1/10S182J
R 21		RS1/10S101J
R 22		RS1/10S223J
R 23		RD1/4PS472JL
R 24		RD1/4PS682JL
R 25		RS1/10S472J
R 26		RD1/4PS103JL
R 27		RS1/10S810J
R 28 59		RD1/10S0R6J
R 52		RD1/4PS333JL
R 53		RD1/4PS104JL
R 54		RD1/4PS123JL
R 55 102 104		RS1/10S682J
R 56		RD1/4PS153JL
R 57		RS1/10S473J
R 58		RS1/10S513J
R 101		RS1/10S133J
R 103		RS1/10S183J
R 105		RS1/10S752J
R 153		RD1/4PS562JL
R 154		RS1/10S332J
R 156		RS1/10S684J
R 157 160 201 202 211		RS1/10S103J

Circuit Symbol & No.	Part Name	Part No.	CAPACITORS	Circuit Symbol & No.	Part Name	Part No.
R 158		RS1/10S822J				
R 203		RD1/4PS513JL				
R 204 219		RD1/4PS103JL	C 1 3 56			CCSQCH220J50
R 205		RS1/10S561J	C 2 53 58			CKSQYF473Z50
R 210		RS1/10S473J	C 4 25			CCSQCH330J50
			C 5			CCSQTH090D50
			C 6			CCSQTH070D50
R 220		RD1/4PS752JL				
R 221		RS1/10S104J				
R 222		RD1/4PS220JL	C 7			CKSQYB222K50
R 223		RS1/10S472J	C 8 22 51 54 59 105 154			CKSQYB223K50
R 251 252		RS1/10S513J	C 9			CCSQTH150J50
			C 10			CCSQSL271J50
			C 11 19 101 164			CKSQYB103K50
R 255 256		RS1/10S470J				
R 257 258		RS1/10S472J				
R 259 260		RS1/10S104J	C 12 24			CCSQCH470J50
R 262		RS1/10S222J	C 13			CEA3R3M50LS
R 263		RS1/BS0R0J	C 14			CKSQYB102K50
			C 15			CCSQCH080D50
R 264		RS1/10S0R0J	C 16			CCSQCH100D50
R 351 352		RD1/4PS562JL	C 17			CCSQCH330J50
R 353 354		RD1/4PS153JL				
R 355		RD1/4PS102JL	C 18			CCSQCH150J50
R 453 454		RS1/10S272J	C 20			CKSQYF104Z25
			C 21			CKSQYB30K25
R 456		RS1/10S0R0J	C 23			CKSQYB223K25
R 477 478		RS1/10S222J	C 27 52			CEA101M10LS
R 459 460		RS1/10S333J				
R 461 462		RS1/10S0R0J	C 55			CEA101M50LS2
R 467 468		RD1/4PS103JL	C 57			CEAR47M50LS2
			C 61			CKSQYB473K50
R 469 470		RS1/10S102J	C 102			CEA470M16LS
R 471 472		RS1/10S473J	C 103			CKSQYB182K50
R 473 474		RS1/10S242J				
R 475 476		RS1/10S123J				
R 479		RS1/10S473J	C 104			CKSQYB662K50
			C 106			CKSQYB222K50
R 480		RD1/4PS104JL	C 151 152			CKSQYB153K50
R 481		RD1/4PS222JL	C 153			CKSQYB332K50
R 482		RD1/4PS392JL	C 155 156 157			CEA010M50LS2
R 489		RS1/BS0R0J	C 158			CEAR22M50LS2
R 492		RS1/BS0R0J	C 159			CEA0R1M50LS2
			C 161			CEA100M16LS2
R 493		RS1/10S472J	C 162 163			CKSQYB152K50
R 494 495 496 497 499		RS1/10S0R0J	C 201			CKSQYB103K50
R 501 955 966		RD1/4PS472JL				
R 503 506		RD1/4PS102JL	C 202			CKSQYB222K50
R 504		RS1/10S472J	C 203			CCSQCH220J50
			C 204 216 227 229 230			CKSQYB223K50
R 505		RD1/4PS152JL	C 205 226			CKSQYF473Z50
R 551 552		RS1/10S102J	C 206			CEA470M16LS
R 553 554		RS1/10S123J				
R 555 556		RS1/10S471J	C 207 209			CCSQTH090D50
R 557 558 559 560		RD1/4PS47JL	C 208			CCSQCH010C50
			C 217			CCSQRH1820J50
R 561		RS1/10S102J	C 218			CCSQQU180J50
R 562		RD1/4PS222JL	C 222			CEAR47M50LS2
R 901		RD1/2PS3R3JL				
R 911 964		RD1/4PS331JL	C 224			CEA3R3M50LS
R 912		RD1/4PS221JL	C 225 232			CKSQYB473K25
			C 228			CEA220M16LS
R 913		RS1/10S103J	C 231			CGPA431G2A
R 914 965		RS1/10S222J	C 251 252			CKSQYB221K50
R 961		RS1P151JL				
R 956		RD1/4PS474JL	C 253 254			CEA2R2M50LS2
R 959		RS1/10S223J	C 255			CEA470M10LS
			C 256			CEA470M10L2
R 960		RD1/4PS222JL	C 257 258			CKSQYB333K50
R 961		RD1/4PS333JL	C 261			CEA221M10L2
R 962		RD1/4PS473JL				
R 963		RD1/4PS103JL	C 262			CEA101M10L2
R 968		RD1/4PS122JL	C 351 352			CEA100M16LS
			C 353			CEA4R7M35LS
R 969		RS1/10S2R2J	C 461 462			CEALNP2H35
			C 463 464			CEAR22M50L2

-----	Circuit Symbol & No.	Part Name	-----	Part No.
C 465	466			CKSQYB473K25
C 467				CEA100M16LS2
C 468				CEA010M50LS2
C 471	472			CEA4R7M35LS
C 473	474			CCSQCH101J50
C 475	476			CEA2R2M50LS2
C 478				CEA470M10L2
C 502				CKSQYB103K50
C 503		4.7 μ F/16V		CCH1005
C 551	552			CKSQYB102K50
C 553	554			CEHAQ4R7M50
C 555	556			CEHAQ470M25
C 557	558 559 560			CFTNA224J50
C 561				CEHAQ220M50
C 562				CEHAQ101M10
C 901				CEHAQ472M18
C 902				CKSQYF473Z50
C 903				CEA102M16L2
C 911	913	330 μ F/10V		CGH1128
C 912				CEA101M10LS
C 951	952			CCSQCH100D50
C 953				CKSQYF473Z50
C 954				CKSYB473K50
C 955				CKDYF223Z50
C 956				CEA331M6R3L2
C 959				CKSYB223K50

Unit Number :

Unit Name : Key Board Unit

-----	Circuit Symbol & No.	Part Name	-----	Part No.
IL 901	902	Lamp 14v40mA		CEL1191
IL 903		Lamp 14v40mA		CEL1169

Unit Number :

Unit Name : P.C.Board(A)

-----	Circuit Symbol & No.	Part Name	-----	Part No.
S	2	Switch(FWD/REV)		ESH1003

Unit Number :

Unit Name : P.C.Board(B)

-----	Circuit Symbol & No.	Part Name	-----	Part No.
S	3	Switch(TAPE/TUN)		ESH1004
S	4	Switch(MUTE)		CSN1005

Miscellaneous Parts List

-----	Circuit Symbol & No.	Part Name	-----	Part No.
S	1	Switch(MUTE)		ESN1005
M	1	Motor Unit		EXA1162
HD	1	Head Unit		EXA1163